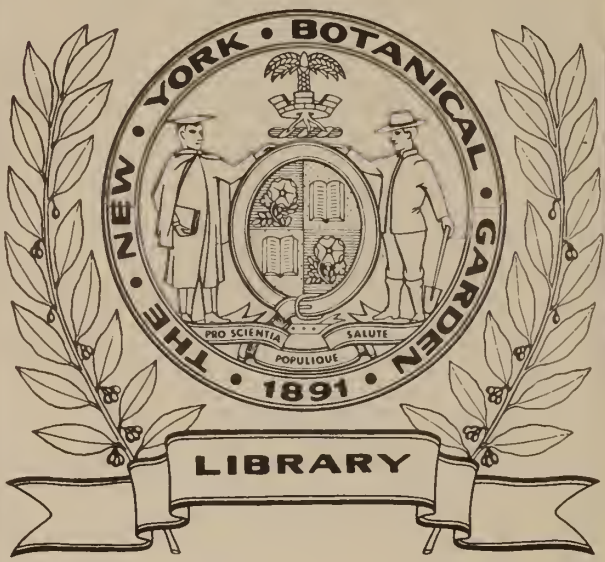

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BRITISH

PHÆNOGAMOUS BOTANY,

OR,

FIGURES AND DESCRIPTIONS OF THE GENERA

OF

BRITISH FLOWERING PLANTS.

BY W. BAXTER, F.H.S.

ASSOCIATE OF THE LINNEAN, AND ROYAL MEDICO BOTANICAL SOCIETIES;
CORRESPONDING MEMBER, AND LOCAL SECRETARY FOR OXFORD,
OF THE BOTANICAL SOCIETY OF LONDON;
CURATOR OF THE BOTANIC GARDEN, OXFORD;
AND AUTHOR OF STIRPES CRYPTOGAMÆ OXONIENSES.

Nor are the Plants which England calls her own
Few or unlovely. MASON.

VOL. V.

OXFORD.

PUBLISHED BY THE AUTHOR;

SOLD BY J. H. PARKER;

AND BY WHITTAKER AND CO. LONDON.

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TO

WILLIAM BORRER, ESQ.

FELLOW OF THE ROYAL, LINNEAN, & HORTICULTURAL SOCIETIES,

&c. &c.

OF HENFIELD, SUSSEX;

TO WHOSE EXTENSIVE KNOWLEDGE, SCIENTIFIC RESEARCHES, AND NUMEROUS VALUABLE DISCOVERIES IN EVERY DEPARTMENT OF THE SCIENCE, THE BOTANY, AND THE BOTANISTS, OF THIS COUNTRY ARE SO GREATLY INDEBTED,

This Volume

OF

BRITISH PHÆNOGAMOUS BOTANY,

IS MOST RESPECTFULLY DEDICATED,

AS A SMALL, BUT SINCERE, TOKEN

OF REGARD AND ESTEEM,

BY HIS OBLIGED,

AND VERY OBEDIENT HUMBLE SERVANT,

WILLIAM BAXTER.

Botanic Garden, Oxford,
October 24, 1840.

209918

——————————— O Father, Lord!
The all-beneficent! I bless Thy name,
That Thou hast mantled the green earth with flowers,
Linking our hearts to nature! By the love
Of their wild blossoms, our young footsteps first
Into her deep recesses are beguiled,
Her minster cells; dark glen and forest bower,
Where, thrilling with its earliest sense of Thee,
Amidst the low religious whisperings
And shivery leaf-sounds of the solitude,
The spirit wakes to worship, and is made
Thy living temple. By the breath of flowers,
Thou callest us, from city throngs and cares,
Back to the woods, the birds, the mountain streams,
That sing of Thee! back to free childhood's heart,
Fresh with the dews of tenderness! Thou bidd'st
The lilies of the field with placid smile
Reprove man's feverish strivings, and infuse
Through his worn soul a more unworldly life,
With their soft holy breath. Thou hast not left
His purer nature, with its fine desires,
Uneared for in this universe of Thine!
The glowing rose attests it, the beloved
Of poet hearts, touch'd by their fervent dreams
With spiritual light, and made a souree
Of heaven-ascending thoughts. E'en to faint age
Thou lend'st the vernal bliss:—the old man's eye
Falls on the kindling blossoms, and his soul
Remembers youth and love, and hopefully
Turns unto Thee, who call'st earth's buried germs
From dust to spleudour; as the mortal seed
Shall, at Thy summons, from the grave spring up
To put on glory to be girt with power,
And fill'd with immortality. Receive
Thanks, blessings, love, for these Thy lavish boons,
And, most of all, their heavenward influences,
O Thou that gavest us flowers!

MRS. HEMANS.



Hyoscyamus niger Black Henbane ☉

I. Russell. Del. Pub.d by W. Baxter Botanic Garden Oxford 1839 W. Willis Sc.

HYOSCY'AMUS*.

Linnean Class and Order. PENTA'NDRIA†, MONOGY'NIA.

Natural Order. SOLA'NEÆ, Juss. Gen. Pl. p. 124.—Sm. Gram. of Bot. p. 101.—Lindl. Syn. p. 180.; Introd. to Nat. Syst. of Bot. p. 231.—Rich. by Macgilliv. p. 435.—Loud. Hort. Brit. p. 527.—Mack. Fl. Hibern. p. 189.—Hook. Brit. Fl. (4th edit.) p. 414.—Macr. Man. Br. Bot. p. 163.—SOLANA'CEÆ, Don's Gen. Syst. of Gard. and Bot. v. iv. p. 397.—SYRINGALES; subord. PRIMULOSÆ; sect. SOLANINÆ; type, SOLANACEÆ; subtv. SOLANIDÆ; Burn. Outl. of Bot. v. ii. pp. 900, 959, 982, 983, & 987.—LURIDÆ, *Linn.*

GEN. CHAR. *Calyx* (figs. 1 & 5.) inferior, large, permanent, of 1 sepal, tubular; swelling below, 5-cleft above, segments pointed. *Corolla* (fig. 2.) of 1 petal, funnel-shaped, irregular; tube cylindrical, short; limb rather spreading, in 5, deep, blunt, rounded segments, one of which is broader than the rest. *Filaments* (fig. 3.) 5, awl-shaped, from some part of the tube of the corolla, inclining, somewhat unequal in length. *Anthers* heart-shaped, incumbent. *Germen* (see fig. 4.) roundish. *Style* (see fig. 4.) thread-shaped, reclining, the length of the longer stamens. *Stigma* (see fig. 4.) capitate. *Capsule* (fig. 6.) egg-shaped, filling the body of the calyx (see fig. 5), blunt, somewhat compressed and marked with a longitudinal furrow at each side, of 2 cells, opening transversely by a convex lid; receptacles (placentas) (see figs. 7 & 8.) oblong, convex, attached to the perpendicular partition. *Seeds* (see fig. 9.) numerous, inversely egg-shaped, curved, dotted, covering the receptacles.

The monopetalous, inferior, funnel-shaped *corolla;* the capitate *stigma;* and the 2-celled *capsule*, opening at the apex by a transverse aperture; will distinguish this from other genera in the same class and order.

One species British.

HYOSCY'AMUS NI'GER. Black Henbane‡. Common Henbane. Hog-bean.

SPEC. CHAR. Leaves clasping the stem, sinuated. Flowers sessile.

Engl. Bot. t. 591.—Sims in Curt. Bot. Mag. t. 2394?—Woodv. Med. Bot. v. i. p. 143. t. 52.—Steph. and Church. Med. Bot. v. i. t. 9.—Johnson's Gerarde, p. 353.—Linn. Sp. Pl. p. 257.—Huds. Fl. Angl. (2nd ed.) p. 92.—Willd. Sp. Pl. v. i. pt. II. p. 1010.—Sm. Fl. Brit. v. i. p. 254.; Engl. Fl. v. i. p. 315.—With. (7th ed.) v. ii. p. 316.—Gray's Nat. Arr. v. ii. p. 329.—Lindl. Syn. p. 181.—Hook. Brit. Fl. p. 94.—Macr. Man. Br. Bot. p. 165.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 471.—Lightf. Fl. Scot. v. i. p. 144.—Sibth. Fl. Oxon. p. 77.—Abbot's Fl. Bedf. p. 50.—Thorn. Fam. Herb. p. 181, with a figure.—Davies' Welsh Bot. p. 23.—Purt. Midl. Fl. v. i. p. 128.—Relh. Fl. Cant. (3rd edit.) p. 95.—Hook. Fl. Scot. p. 78.—Grev. Fl. Edin. p. 53.—Fl. Devon. pp. 40 & 150.—Johnst. Fl. of Berw. v. i. p. 60.—Winch's Fl. of Northumb. and Durh. p. 15.—Walker's Fl. of Oxf. p.

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. Stamens.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. Calyx, enclosing the ripened Capsule.—Fig. 6. Capsule.—Fig. 7. Transverse section of ditto.—Fig. 8. The Receptacle and Partition.

* From *us, uos*, Gr. *a hog;* and *kuamos*, Gr. *a bean.* Hogs are said to eat the fruit, which bears some resemblance to a bean. HOOKER.

† See folio 48, note †. ‡ From its being destructive to *Hens.*

62.—Perry's Pl. Varv. Selectæ, p. 21.—Bab. Fl. Bath. p. 33.—Murr. North. Fl. p. 140.—Dick. Fl. Abred. p. 29.—Irv. Lond. Fl. p. 139.—Luxf. Reig. Fl. p. 19.—Mack. Catal. Pl. Irel. p. 24; Fl. Hibern. p. 190.—*Hyoscyamus vulgaris*, Ray's Syn. p. 274.

Localities.—On waste ground, by road-sides, and on banks, and commons, in a dry gravelly or chalky soil, especially near towns and villages, whence Linnæus remarks, that it associates with mankind, like the Magpie, and some other birds.

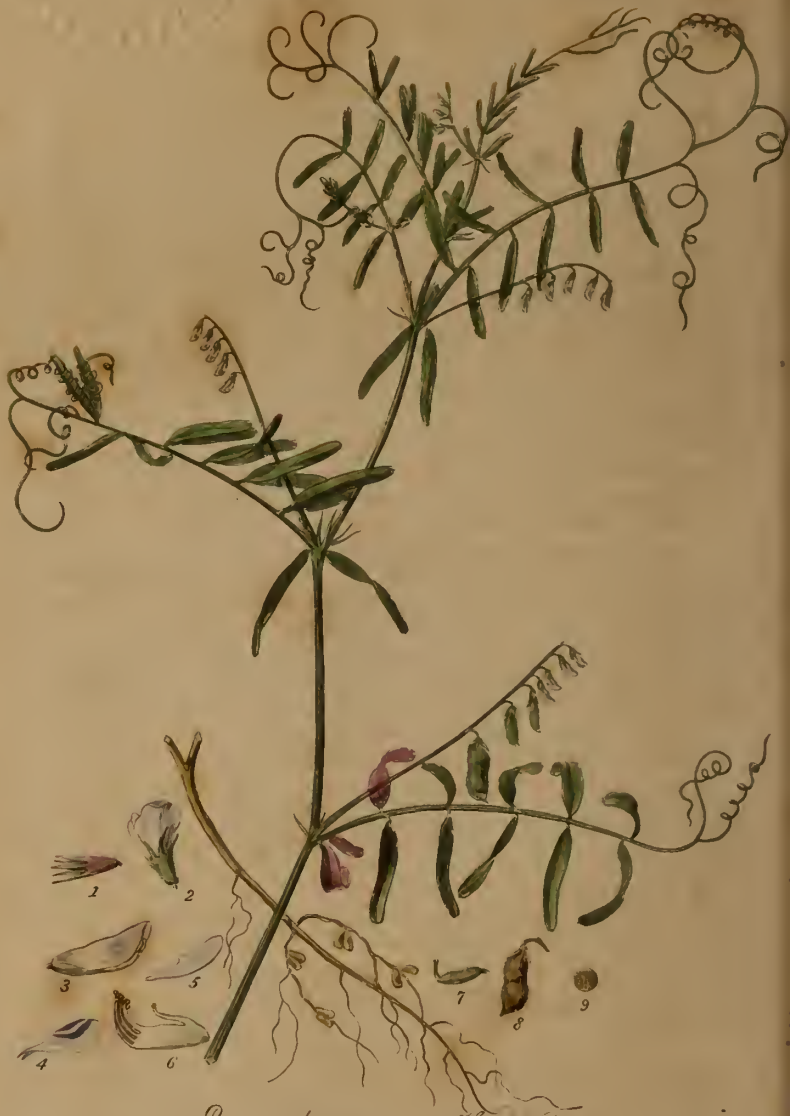
Biennial.—Flowers from June to August.

Root spindle-shaped. *Stem* from one to four feet high, upright, round, tough, branched, woolly towards the top, very leafy. *Leaves* alternate, sessile or stem-clasping, soft and pliant, somewhat egg-shaped, sinuated, with sharp lobes, downy and viscid, exhaling a powerful and oppressive odour, like all the rest of the plant. *Flowers* numerous, from the bosoms of the crowded upper leaves, almost entirely sessile. *Calyx* a little distended on the under side, woolly at the base, the tubular part enlarging and enclosing the seed-vessel. *Corolla* of a pale yellowish-brown, beautifully netted with purple veins, and a dark purple eye or base. *Filaments* white. *Anthers* and *Style* of a fine deep purple. *Capsules* in two rows, all turned to one side, enclosed in the permanent calyx, and forming a kind of unilateral, leafy spike. Each capsule contains a great number of small *seeds*, which find egress by the rounded convex top coming off, like the lid of a box.—A variety of this species with the corolla destitute of the purple veins, has been observed at Fincham, Norfolk, by the Rev. R. Forby.

Whole plant powerfully narcotic, and when taken in any considerable quantity, proves quickly poisonous; well authenticated instances of its fatal effects are recorded. Madness, convulsions, and death, are the general consequences; yet medicinal preparations of no small importance are obtained from this plant, which, according to the experience of Dr. Murray, are the best substitute for opium which we have; possessing in no small degree its useful qualities, without causing the bad effects, fairly attributed to that medicine. The roots strung in the form of beads are the anodyne necklaces tied round the necks of children to facilitate the growth of their teeth. The fumes from the seeds, heated in the bowl of a tobacco-pipe, placed in the fire, and applied by a funnel to a carious tooth, have been recommended in severe fits of toothache.

The *Natural Order*, Solaneæ, to which the present plant belongs, is composed of Dicotyledonous *herbs* or *shrubs*, whose *leaves* are alternate, without *stipulas*, sometimes opposite beneath the flowers. They have a 5-parted, seldom 4-parted, permanent, inferior *calyx;* a monopetalous, inferior *corolla*, with the limb 5-cleft, seldom only 4-cleft, regular, or somewhat unequal, deciduous, the æstivation, in the genuine genera of the order, plaited; in the spurious genera imbricated. Their *stamens* are inserted into the corolla, and correspond in number with the segments of its limb, with which they are alternate; one sometimes being abortive. The *pericarpium* is 2- or 4-celled, and is either a *capsule*, with a double dissepiment parallel with the valves, or a *berry*, with the placentæ adhering to the dissepiment. The *seeds* are numerous, and sessile. The *embryo*, which is included in a fleshy *albumen*, is more or less curved, and often out of the centre; with its *radical* next the *hilum*.

The British genera in this order are, *Datura*, t. 121; *Hyoscyamus*, t. 321; *Solanum*, t. 110; *Atropa*, t. 10; and *Verbascum*, t. 85. The latter is referred, by Sir J. W. Hooker, to Scrophularinæ.



Ervum hirsutum. Hairy Tare.

C. Matthews Del. & Sc. Pub.d by W. Baxter, Botanic Garden Oxford 1839.

E'RVUM*.

Linnean Class and Order. DIADE'LPHIA †, DECA'NDRIA.

Natural Order. LEGUMINO'SÆ, Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259.—Loud. Hort. Brit. p. 509.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—LEGUMINA'CEÆ, Loud. Arb. Brit. p. 561.—PAPILIONA'CEÆ‡, *Linn.*—ROSALES; sect. CICERINÆ; subsect. LOTIANÆ; type, LATHYRACEÆ; subtype, VICIDÆ; Burn. Outl. of Bot. pp. 614, 638, 642, 659, & 661.

GEN. CHAR. *Calyx* (fig. 1.) inferior, tubular, cut about half way down, into 5, strap-shaped, taper-pointed segments, shorter than the corolla; the lowermost rather the longest. *Corolla* (see fig. 2.) of 5 petals; standard (see figs. 2 & 3.) largest, inversely egg-shaped, slightly reflexed; wings (fig. 5.) half as long, blunt; keel (fig. 4.) nearly equal to the wings, rounded, with a sharp point, of 2 combined petals, with separate claws. *Filaments* (see fig. 6.) 10; 9 united into a compressed tube, open at the upper edge; the tenth hair-like, distinct, closing the fissure. *Anthers* small, roundish. *Germen* (fig. 7.) oblong, compressed. *Style* (see fig. 7.) cylindrical, half as long, ascending at a right angle. *Stigma* terminal, capitate, downy all over. *Legume* (fig. 8.) oblong, compressed, bluntish, tumid only from the projection of the *seeds*, which are from 2 to 4, roundish, a little flattened (fig. 9).

The smooth *style;* the capitate *stigma*, hairy all over; and the 2- or 4-seeded *legume;* will distinguish this from other genera, with diadelphous stamens, in the same class and order.

Two species British.

E'RVUM HIRSU'TUM. Hairy-podded Tare. Tine Tare. Rough-podded Tare.

SPEC. CHAR. Peduncles many-flowered. Legumes hairy, 2-seeded. Leaflets linear-oblong, abrupt.

Engl. Bot. t. 970.—Curt. Fl. Lond t. .—Linn. Sp. Pl. p. 1039.—Huds. Fl. Angl. (2nd ed.) p. 321.—Willd. Sp. Pl. v. iii. pt. ii. p. 1113.—Sm. Fl. Brit. v. ii. p. 776.; Engl. Fl. v. iii. p. 289.—With. (7th edit.) v. iii. p. 847.—Lindl. Syn. p. 83.—Hook. Brit. Fl. p. 324.—Macr. Man. Brit. Bot. p. 58.—Lightf. Fl. Scot. v. i. p. 398.—Sibth. Fl. Oxon. p. 225.—Abbot's Fl. Bedf. p. 159.—Davies' Welsh Bot. p. 70.—Purt. Midl. Fl. v. i. p. 334.—Relh. Fl. Cant. (3rd ed.) p. 295.—Hook. Fl. Scot. p. 216.—Grev. Fl. Edin. p. 158.—Johnst. Fl. of Berw. v. i. p. 161.—Fl. Dev. pp. 122 & 175.—Winch's Fl of Northumb. and Durh. p. 48.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 326.—Walker's Fl. of Oxf. p. 210.—Pamp. Pl. of Battersea, p. 13.—Dick. Fl. Abred. p. 48.—Irv. Lond. Fl. p. 176.—Luxf. Reig. Fl. p. 63.—Mack. Catal. Pl. of Irel. p. 67.; Fl. Hibern. p. 81.—*Vicia hirsuta*, Gray's Nat. Arr. v. ii. p. 614.—*Vicia Michelli*, De Cand. Prod. v. ii. p. 360?—*Vicia sylvestris, sive Cracca minima*, Johns. Ger. p. 1228.—*Cracca minor*, Ray's Syn. p. 322.

Fig. 1. Calyx.—Fig. 2. Ditto, and Corolla.—Fig. 3. Corolla only.—Fig. 4. The Keel.—Fig. 5. One of the Wings.—Fig. 6. The Stamens.—Fig. 7. Germen, Style, and Stigma.—Fig. 8. A Legume.—Fig. 9. A Seed.

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* From the Celtic *erw*, a *ploughed field*, of which it is the pest; or, from *eruo*, Gr. *to pluck out;* as necessary to be eradicated from the growing corn; to separate the *tares* from the wheat.

† See folio 77, note †. ‡ See folio 117, note ‡.

Localities.—In corn-fields, hedges, and pastures, often a troublesome weed.

Annual.—Flowers from June to August.

Root tapering, long, slender, and furnished with few fibres, some of them frequently bearing small granulations. *Stems* from 6 inches to 2 feet or more long, branched from the bottom, weak, slender, 4-cornered, nearly smooth, zigzag, and somewhat twisted; either climbing, or nearly prostrate, leafy. *Leaves* alternate, pinnated, the petiole terminated by a branched tendril; *leaflets* either alternate or opposite, from 5 to 12 pair, their summits either blunt or notched, with a small point, darkish green above, and when viewed with a microscope, beautifully spotted with white, silvery dots; the under side of a silvery white. *Stipulas* in from 3 to 5 slender divisions, the upper one of which is usually the largest. *Peduncles* nearly as long as the leaves, axillary, supporting from 3 to 8 very small flowers, forming a small, unilateral raceme, and lying one over another. *Calyx* with strap-spear-shaped, nearly equal segments, longer than the tube. *Corolla* very small, pale blue, or almost white; standard (see figs. 2 & 3.) roundish, scarcely notched, a little recurved; wings (fig. 5.) adhering to the keel, oval, blunt, tapering at the base; keel shorter than the wings, and marked internally on each side with a dark spot. *Legume* (fig. 8.) short, compressed, rather truncate, hairy, dark brown, finely reticulated, pendulous, 2-seeded. *Seeds* globose, variegated, large and prominent.

This is a very troublesome weed in corn-fields; in wet seasons whole crops have been overpowered and wholly destroyed by it; hence it is sometimes called *Strangle Tare*. All sorts of cattle will eat it. The seeds when ground in flour affect it with a strong disagreeable flavour.

Dr. Withering observes, that both the *Tine Tares* (*Ervum tetraspermum*, and *E. hirsutum*,) not only illustrate the old adage, that "ill weeds grow apace," but that they likewise increase by superabundant fertility; for it appears from experiment, that a single seed will, by the produce of one plant only, multiply itself a thousand fold in a very short time.

As far as I have observed, neither of the *Tine Tares* are very common about Oxford; but in the neighbourhood of Rugby, in Warwickshire, in July, 1831, they were very abundant, not only in corn-fields, but also in meadows, pastures, under hedges, and by road-sides.

"The smallest flower
That twinkles through the meadow grass, can serve
For subject of a lesson; aye, as well
As the most gorgeous growth of Indian climes;
For love of nature dwells not in the heart
Which seeks for things beyond our daily ken
To bid it glow. It is in common life,
In objects most familiar, we find
Exhaustless matter for our privilege,
Our glorious privilege of reading God
Amid his bright creation." L. A. Twamley.



Thrincia hirta. hairy Thrincia. 4

J. Russell. Del

Pub^d by W. Baxter, Botanic Garden, Oxford. 1839

W. Willis. Sc

THRI'NCIA*.

Linnean Class & Order. SYGENE'SIA†, POLYGA'MIA, ÆQUALIS‡.
Natural Order. COMPO'SITÆ§, *(Linn.)*, tribe, CICHORA'CEÆ, Lindl. Syn. pp. 140 & 156.; Introd. to Nat. Syst. of Bot. pp. 197 and 201.—Loud. Hort. Brit. pp. 520 & 521.—Mack. Fl. Hibern. pp. 142 & 159.—Hook. Brit. Fl. (4th ed.) p. 410.—CICHORA'CEÆ, Juss. Gen. Pl. p. 168.—Sm. Gr. of Bot. p. 120.—SYNANTHE'REÆ, Rich. by Macgilliv. p. 454.—SYRINGALES; subord. ASTEROSÆ; type, CICHORACEÆ; Burn. Outl. of Bot. pp. 900, 901, & 935.

GEN. CHAR. *Involucrum (common calyx)* (fig. 1.) angular, imbricated; *scales* dilated at the base. *Corolla* compound, of numerous, imbricated, uniform, perfect, strap-shaped, blunt, 5-toothed florets (fig. 2). *Filaments* (see fig. 3.) 5, hair-like, very short. *Anthers* (see fig. 3.) united into a cylindrical tube. *Germen* (see fig. 2.) oblong. *Style* (see figs. 2 & 3.) thread-shaped, prominent. *Stigmas* 2, recurved. *Seed-vessel* none, except the converging, finally spreading involucrum. *Seeds* (see figs. 4 & 5.) oblong, striated, tapering into a beak; those next within the involucrum crowned with a row of short, flat, toothed scales only (see fig. 4.); the rest with a sessile, feathery *pappus* (see fig. 5). *Receptacle* (see fig. 7.) naked, dotted.

The imbricated *involucrum;* the naked *receptacle;* the *seeds* of the florets of the disk crowned with sessile, feathery, unequal *pappus;* and those of the ray with a short scaly cup only; will distinguish this from other genera in the same class and order.

One species British.

THRI'NCIA HIRTA. Hairy Thrincia. Deficient Hawkbit. Smaller Rough Dandelion.

SPEC. CHAR. Leaves spear-shaped, sinuately toothed; hairy, hairs frequently forked. Scapes naked, single-flowered; involucrum nearly smooth.

Willd. Sp. Pl. v. iii. pt. iii. p. 1554.—Lindl. Syn. p. 162.—Hook. Brit. Fl. p. 341.—Macr. Man. Brit. Bot. p. 141.—Bab. Fl. Bath. p. 29.—Mack. Catal. Pl. of Irel. p. 69.; Fl. Hibern. p. 165.—*Thrica hirta*, Gray's Nat. Arr. v. ii. p. 428.—*Aparyia hirta*, Sm. Eng. Fl. v. iii. p. 352.—Hook. Fl. Scot. p. 228.—Grev. Fl. Edin. p. 167.—Fl. Devon. pp. 130 & 155.—Winch's Fl. of Northumb. and Durh. p. 51.—Walker's Fl. of Oxf. p. 224.—Irv. Lond. Fl. p. 151.—*Hedypnois hirta*, Engl. Bot. t. 555.—Sm. Fl. Brit. v. ii. p. 824.—Relh. Fl. Cant. (3rd ed.) p. 321.—*Hedypnois hispidum*, var. β. Huds. Fl. Angl. (2nd edit.) p. 340.—*Leontodon hirtum*, Linn. Sp. Pl. p. 1123.—Curt. Fl. Lond. t. .—With. (7th edit.) v. iii. p. 890.—Sibth. Fl. Oxon. p. 283.—Abbot's Fl. Bedf. p. 170.—Purt. Midl. Fl. v. ii. p. 367.—*Hieracium pumilum saxatile asperum, præmorsâ radice*, Ray's Syn. p. 167.

LOCALITIES.—On heaths and commons, especially on a gravelly soil; frequent.

Perennial.—Flowers from June to August.

Fig. 1. The Involucrum.—Fig. 2. A single Floret.—Fig. 3. The Stamens and Pistil, showing the 5 Filaments, the united Anthers, and the Germen, Style, and Stigmas.—Fig. 4. A Seed of the circumference, crowned with a short scaly cup.—Fig. 5. A Seed of the disk, with its feathery pappus.—Fig. 6. A Ray of the pappus, *magnified.*—Fig. 7. The Receptacle, with the reflexed scales of the involucrum.

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* From *thrinkos*, Gr. a *feather;* in allusion to the feathery pappus.
† See folio 91, note *. ‡ See folio 147, note ‡. § See folio 27. *a*.

Root abrupt, not tapering. *Leaves* all radical, spreading, oblong-spear-shaped, toothed, rarely entire; of a yellowish-green colour, hairy, hairs generally simple, but sometimes forked at the extremity. *Scapes (stalks)* several from the same root, from 6 to 8 inches high, simple, round, hairy, single-flowered. *Flowers* about half the size of those of *Apargia hispida* (t. 318), drooping before expansion, and reddish. *Involucrum* almost entirely smooth. *Florets* strap-shaped, yellow, destitute of hairs on the tube, as well as of glands under their tips; the inner ones with a less perfect corolla than the outer row. The *Seeds* of the latter are crowned with a row of short, flat, toothed scales only (see fig. 4.), while those of the former bear sessile feathery *down* (see fig. 5).

This greatly resembles *Apargia hispida*, but it is a much smaller plant, and is readily distinguished from that, and its other congeners, by its nearly smooth calyx, and the want of feathery pappus to the outer row of seeds.

Day Stars! that ope your eyes with man, to twinkle
From rainbow galaxies of Earth's creation,
And dew-drops on her lonely altars sprinkle
As a libation.

Ye matin worshippers! who, bending lowly
Before the uprisen Sun, God's lidless eye,
Throw from your chalices a sweet and holy
Incense on high.

Ye bright Mosaics! that with storied beauty,
The floor of Nature's temple tesselate,
What numerous emblems of instructive duty
Your forms create!

Your voiceless lips, O Flowers! are living preachers,
Each cup a pulpit, every leaf a book,
Supplying to my fancy numerous teachers
From luneliest nook.

Floral Apostles! that, in dewy splendour,
"Weep without woe, and blush without a crime,"
Oh! may I deeply learn, and ne'er surrender
Your lore sublime.

In the sweet-scented pictures, heavenly Artist!
With which thou paintest nature's wide-spread hall,
What a delightful lesson thou impartest
Of love to all!

Not useless are ye, Flowers! though made for pleasure;
Blooming o'er field and wave, by day and night,
From every source your sanction bids me treasure
Harmless delight.

Posthumous glories! angel-like collection!
Upraised from seed or bulb interred in earth,
Ye are to me a type of resurrection,
And second birth.

Were I, O God! in churchless lands remaining,
Far from all voice of teachers or divines,
My soul would find, in flowers of thy ordaining,
Priests, sermons, shrines*!

Horace Smith.

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* From a "Hymn to the Flowers."



5 *Festuca pratensis. Meadow Fescue-grass* 2

C. Mathews Del & Sc

Pub.d by W. Baxter Botanic Garden Oxford 1834

FESTU'CA *.

Linnean Class and Order. TRIA'NDRIA †, DIGY'NIA.

Natural Order. GRAMI'NEÆ, Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71.—Lindl. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. Hibern. p. 294.—Hook. Brit. Fl. (4th edit.) p. 426.—GRAMINA, *Linn.*—GRAMINALES; sect. FESTUCINÆ; type, AVENACEÆ; Burn. Outl. of Bot. v. i. pp. 359 and 369.

GEN. CHAR. *Panicle* loose, more or less spreading. *Spikelets* (fig. 2.) oblong, compressed, of many alternate, 2-ranked, more or less awned, perfect florets. *Calyx* (fig. 1.) of 2 unequal, spear-shaped, sharp pointed concave, keeled *glumes*. *Corolla* (fig. 3.) of 2 unequal *paleæ (valves)*; the outer generally nearly cylindrical, entire, pointed or awned at the summit, keeled, concave, scarcely compressed, more or less ribbed, longer than the calyx, a little inflexed at the edges; inner narrower, elliptic-oblong, 2-ribbed, cloven or abrupt at the summit, the margins membranous, folded in at each rib, which is, for the most part, downy externally. *Nectary* (fig. 5.) of 1, deeply divided, or of 2 separate, sometimes cloven, pointed scales. *Filaments* (see fig. 3.) 3, hair-like, shorter than the corolla. *Anthers* strap-shaped, pendulous, notched at each end. *Germen* (see fig. 4.) turbinate. *Styles* distant, short. *Stigmas* (see fig. 4.) feathery. *Seed* oblong, with a longitudinal furrow, pointed, quite loose, though closely enveloped in the unchanged corolla.

The loose *panicle*; the *calyx* of 2 unequal glumes, containing many florets; and the *corolla* of 2 spear-shaped paleæ, the outer one pointed or awned at the summit; will distinguish this from other genera in the same class and order. See HOOK. *Brit Fl.* (4th edit.) t. 2. f. 28.

Ten species British. (*Hook. Br. Fl.*)

FESTU'CA PRATENSIS. Meadow Fescue-Grass.

SPEC. CHAR. Panicle spreading, branched. Spikelets strap-shaped, many-flowered. Florets cylindrical, awnless, outer valve (palea) of the corolla pointed. Leaves strap-shaped. Root fibrous.

Engl. Bot. t. 1592.—Curt. Fl. Lond. t. .—Knapp's Gram. Brit. t. 73.—Curt. on Brit. Grasses, (5th ed.) p. 14. t. 5.—Mart. Fl. Rust. t. 84, (in a late stage of flowering).—Graves' Monogr. Br. Grasses, t. 90.—Sincl. Hort. Gram. Wob. p. 149, with a plate.—Huds. Fl. Angl. (1st ed.) p. 37.—Sm. Fl. Brit. v. i. p. 123; Engl. Fl. v. i. p. 147.—With. (7th ed.) v. ii. p. 183.—Hook. Brit. Fl. p. 47.—Macr. Man. Brit. Bot. p. 272.—Sibth. Fl. Oxon. p. 45.—Abb. Fl. Bedf. p. 21.—Purt. Midl. Fl. v. i p. 82.—Davies' Welsh Bot. p. 11.—Relh. Fl. Cant. (3rd ed.) p. 41.—Salisb. Bot. Comp. v. ii. p. 7.—Hook. Fl. Scot. p. 40.—Grev. Fl. Edin. p. 27.—Fl. Devon. pp. 20 & 125.—Johnst. Fl. of Berw. v. i. p. 27.—Winch's Fl. of Northumb. and Durh. p. 7.—Baxt. Lib. Agr. and Hort. Knowl. (2nd edit.) p. 299, with a figure.—Loud. Mag. Nat. Hist. v. i. p. 382, with a figure.—Walker's Fl. of Oxf. p. 27.—Bab. Fl. Bath. p. 58.—Murr. North. Fl. p. 71.—Dick. Fl.

Fig. 1. The Calyx or Glumes.—Fig. 2. A Spikelet.—Fig. 3. A Floret, showing its 2 Paleæ, its Stamens, and Pistils.—Fig. 4. Germen, Styles, and Stigmas.—Fig. 5. The Nectary.

* From the Celtic, *fest*, according to THEIS, which signifies *food, pasturage*. HOOKER.

† See folio 36, note †.

Abrod. p. 24.—Inv. Lond. Fl. p. 99.—Luxf. Reig. Fl. p. 9.—Mack. Catal. Pl. of Irel. p. 15.; Fl. Hibern. p. 309.—*Festuca elatior*, Linn. Fl. Suec. p. 32.—Host. Gram. Austr. v. ii. p. 57. t. 79.—Schreb. Besch. der Gräser. v. i. p. 34. t. 2.—Leers' Fl. Herb. (2nd edit.) p. 34. t. 8. f. 6.—*F. elatior*, var. 2. pratensis, With. (5th edit.) v. ii. p. 206.—*F. fluitans* γ. pratensis, Huds. Fl. Angl. (2nd edit.) p. 47.—*Schedonorus pratensis*, Gray's Nat. Arr. v. ii. p. 114.—Lindl. Syn. p. 312.—*Gramen paniculatum elatius, spicis longis muticis squamosis*, Ray's Syn. p. 411.; but not Barrel. Ic. t. 25.

Localities.—In meadows and pastures.

Perennial.—Flowers in June and July.

Root fibrous, tufted. *Culms* several, upright, from 1 to 2 feet high, simple, round, smooth, leafy, bent at the lowest joint only. *Leaves* spreading, strap-shaped, pointed, flat, striated; those on the culms rough on both sides. *Sheaths* striated, very smooth. *Ligula (stipula)* very short, blunt, often torn, decurrent, clasping the stem. *Panicle* nearly upright, branched, spreading, the branches inclining to one side, solitary or in pairs, unequal, their pedicels rough and compressed; all closed together after flowering. *Spikelets* strap-shaped, compressed, of 8 or 9 florets. *Glumes* (fig. 1.) unequal, rather sharp-pointed, keeled, smooth, the larger one egg-spear-shaped, with 3 or 5 ribs; the smaller single-ribbed. Outer *palea* (valve of the *corolla*) cylindrical, keeled, more or less of a purplish colour, smooth, except the keel, ending in a membranous point, which in the upper *florets* is sometimes cloven, and attended by a short *awn;* inner *palea* downy at the margin. *Nectary* with 4 points. *Germen* (fig. 4.) inversely egg-shaped; *Styles* short and distant; *Stigmas* thick and feathery. *Seed* loose, spear-shaped, pointed, channelled along the upper side.

This is one of the most valuable of our Grasses, and is highly esteemed by all persons practically acquainted with the produce of our meadows; its foliage is juicy, sweet, and abundant, and in rather moist situations it will bear the scythe more than twice in the season. "No plant whatever," says Mr. Salisbury, "deserves so much the attention of the grazier as this grass." It will grow in almost any soil, and all descriptions of cattle eat it, and are nourished by it. It is of easy culture, and yields abundance of seed, which grows very readily. It is recommended to lay down meadow-land with one bushel of this seed, one bushel of *Alopecurus pratensis*, three pounds of *Anthoxanthum odoratum* (t. 99.), and a little *Bromus mollis*, with *Clover*. Mr. Salisbury informs us, that he made some excellent meadows with this seed, which, after a trial of ten years, were equal to any in the kingdom.

From Mr. Sinclair's experiments, it appears that the *Meadow Fescue Grass* at the time of flowering is of greater value than at the time the seed is ripe, proportionally, as 3 to 1. That it is of greater value than that of the *Meadow Foxtail (Alopecurus pratensis*, t. 45.), in the proportion nearly of 11 to 9. That the *Cock's-foot Grass (Dactylis glomerata*, t. 108.) is superior in point of produce to the *Meadow Fescue*, in the proportion nearly of 2 to 1. But for grazing, Mr. Sinclair observes, the latter-math produce of the *Meadow Fescue* must be brought forward; in this case it approaches nearer to *Cook's-foot* in value, and increases its superiority, in point of produce, over the *Meadow Foxtail*.

In the vale of Aylesbury it constitutes a considerable portion of the most valuable and fattening pastures of that rich grazing district.



Rosa arvensis. Trailing Dog-rose. ♄

C. Mathews Del. & Sc. Pubd by W. Baxter Botanic Garden Oxford 1839

RO'SA*.

Linnean Class and Order. Icosa'ndria†, Polygy'nia.

Natural Order. Rosa'ceæ‡, Juss. Gen. Pl. p. 334.—Sm. Gram. of Bot. p. 171.—Lindl. Syn. p. 88.; Introd. to Nat. Syst. of Bot. p. 81.—Rich. by Macgilliv. p. 528.—Loud. Hort. Brit. p. 512.; Arbor. et Frutic. Brit. v. ii. p. 670.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 523.—Mack. Fl. Hibern. p. 85.—Hook. Brit. Fl. (4th ed.) p. 404.—Rosales; sect. Rosinæ; subsect. Rosianæ; type, Rosaceæ; subtype, Rosidæ; Burn. Outl. of Bot. v. ii. pp. 614, 683, 699, & 704.—Senticosæ, *Linn.*

Gen. Char. *Calyx* (see fig. 1.) inferior, of 1 sepal; tube urn-shaped, contracted at the mouth, permanent, finally succulent; limb in 5 deep, egg-spear-shaped, pointed, concave, imbricated, permanent or deciduous segments; either all simple, or 2 of them pinnate with leafy appendages on both sides; 1 on one side only, the other 2 naked on both sides. *Corolla* (fig. 2.) of 5, inversely heart-shaped, deciduous petals, about as long as the segments of the calyx, and attached by broad claws to the rim of its tube. *Filaments* (fig. 3, *a.*) numerous, hair-like, much shorter than the petals (see fig. 1.), attached to the rim of the calyx within the corolla. *Anthers* roundish, flattened, of 2 oblong tumid lobes. *Germens* (see figs. 3, 5, & 6.) numerous, oblong, inserted on the inside of the tube of the calyx, interspersed with dense silky hairs. *Styles* (see figs. 5 & 6.) 1 to each germen, lateral, smooth or hairy, all passing through the contracted mouth of the calyx; in some cases united into a cylinder (see figs. 3 & 5). *Stigmas* blunt. *Fruit* (figs. 7 & 8.) globose or egg-shaped, formed of the permanent, pulpy, coloured tube of the calyx, closed at the summit, and containing numerous, oblong, angular, hard, bristly *seeds (achenia*, Lindl.), interspersed with rigid hairs.

The urn-shaped, fleshy *calyx*, contracted at the orifice, and terminating in 5 segments; its tube lined with hairs, and with numerous bristly *seeds;* will distinguish this from other genera in the same class and order.

Nineteen species British. *Hook. Brit. Fl.*

RO'SA ARVE'NSIS. Field Dog-Rose. Trailing Dog-Rose. White-flowered Dog-Rose.

Spec. Char. Shoots trailing. Prickles hooked; those on the root-shoots few, scattered. Leaflets simply serrated, glaucous beneath, their disk without glands. Segments of the calyx sparingly pinnate, deciduous. Styles united, smooth.

Engl. Bot. t. 188.—Hook. Fl. Lond. t. 123.—Huds. Fl. Angl. 1st edit. p. 192, and 2nd edit. p. 219.—Linn. Mant. 2, p. 245.—Willd. Sp. Pl. v. ii. pt. ii. p. 1066.—Sm. Fl. Brit. v. ii. p. 538; Engl. Fl. v. ii. p. 396.—With. (7th ed.) v. iii. p. 611.—Gray's Nat. Arr. v. ii. p. 574.—Woods in Trans. Linn. Soc. v. xii. p. 232.—Lindl.

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. A vertical section of the Calyx; *a.* Stamens; *b.* Pistils.—Fig. 4. A Stamen.—Fig. 5. The Pistils, united into a column.—Fig. 6. A separate Pistil.—Fig. 7. A Fruit.—Fig. 8. Vertical section of ditto.—Fig. 9. A Seed.

* From the Celtic *Rhos, red;* in reference to the colour of the flowers of most of the species. Don.—The Rose is the national badge of England.

† See folio 100, note †. ‡ See folio 313, *a.*

Syn. p. 102.—Hook. Brit. Fl. p. 241.—Macr. Man. Brit. Bot. p. 71.—Lightf. Fl. Scot. v. ii. p. 261.—Sibth. Fl. Oxon. p. 159.—Abbot's Fl. Bedf. p. 111.—Purt. Midl. Fl. v. i. p. 247.—Davies' Welsh Bot. p. 49.—Relh. Fl. Cant. (3rd edit.) p. 200.—Hook. Fl. Scot. p. 158.—Grev. Fl. Edin. p. 114.—Fl. Devon. pp. 86 & 171. —Winch's Geog. Pl. (2nd ed.) p. 49.; Fl. of Northumb. and Durh. p. 34.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 583.—Loud. Arb. et Frutic. Brit. p. 772, with a figure.—Walker's Fl. of Oxf. p. 141.—Bab. Fl. Bath. p. 16.—Irv. Lond. Fl. p. 188.—Luxf. Reig. Fl. p. 41.—Cow. Fl. Faver. p. 15.—Mack. Catal. Pl. of Irel. p. 49.; Fl. Hib. p. 104.—*Rosa repens*, Jacq. Frag. p. 69. t. 104.—*Rosa sylvestris altera minor, flore albo nostras*, Ray's Syn. p. 455.

Localities.—In hedges, thickets, woods, and on the borders of fields, chiefly in the midland counties; not uncommon.

Shrub.—Flowers in June and July.

A *bush* about 3 or 4 feet high when unsupported, with abundance of trailing, glaucous, mahogany-coloured, arching shoots, frequently many feet in length, often feeble, much divided, and entangled, and occasionally producing rugged excrescences, which readily take root. *Prickles* all scattered, not in pairs, but little dilated at the base, hooked, those on strong shoots often compressedly conical, with a straight or curved point; those on the branches few, small, more or less curved. *Leaflets* 5, rarely 7, thin, nearly flat, simply, though sometimes unequally, serrated, dull green, paler and somewhat glaucous beneath, generally smooth on both sides, or slightly hairy beneath, chiefly on the midrib. *Petioles (leaf-stalks)* hairy, or glandular, or both, with hooked prickles. *Stipulas* strap-shaped, pointed, narrow, diverging at the tip, glandular at the margin. *Bracteas*, similar, strap-spear-shaped. *Flowers* rarely solitary, generally from 2 to 5 together, rather concave, slightly fragrant, white and very elegant; the buds frequently blush-coloured. *Peduncles (flower-stalks)* long, often dark red, smooth or sprinkled with almost sessile glands. *Tube* of the *Calyx* elliptic-oblong, glaucous, partly reddish, smooth, rarely glandular; *segments* smooth or somewhat glandular, with a few small, entire, spear-shaped pinnæ. *Styles* (see fig. 5.) united into a stout, furrowed, elongated, smooth column, often longer than the stamens, permanent. *Stigmas* smooth, crowded, and partly combined, into a round head. *Fruit (Hip)* small, spherical, egg-shaped, or elliptical; of a dark blood-red when ripe, with an orange-red pulp of a pleasant peculiar flavour.

Rosa arvensis is distinguished from all other British species, except *R. systyla*, by its styles being united in a long smooth column. From *systyla* it may be known by its cord-like, decumbent shoots, and solitary, scattered prickles. Three or four wild varieties are noticed by authors. The variety with hispid fruit I have seen in a hedge between the Canal and the Woodstock road, about a mile from Oxford. *R. arvensis hybrida*, or *Double Hip-Rose*, and *R. arvensis Andersoni*, are handsome varieties, and are frequently cultivated in gardens. The former is said to have been found in Devonshire; the latter in Somersetshire. The Ayrshire Rose, which is supposed by some to be of American origin, and to have been introduced into Ayrshire by the Earl of Loudon, is considered by some Botanists as only a variety of *R. arvensis*.—In all countries, where it is known, and in every age, the Rose has been held the Queen of Flowers, and the Poets of all nations and all languages have sung its praises. It has been made the symbol of various sentiments; and even of those the most opposite to each other. Piety employs it in adorning her holy temples; love expressed its tenderness by wreaths; gaiety revelled adorned with crowns of roses; grief strews it on the tomb; luxury spreads it on the couch; and modesty and purity receive it as their sweetest and most glorious reward. The beauty of the morning is allegorically represented by this flower; and Aurora is depictured strewing Roses before the chariot of Phœbus.

The Rose is the symbol of Silence; "under the Rose," means to be silent.



I Purssell Del.

W Wrides

Betula alba White Birch ♄

Published by W Baxter, Botanic Garden, Oxford 1839

BE'TULA *.

Linnean Class and Order. MONŒ'CIA †, POLYA'NDRIA.

Natural Order. BETULI'NEÆ, Rich. by Macgilliv. p. 544.—Lindl. Intr. to Nat. Syst. p. 98.—AMENTA'CEÆ, *Linn.*—Juss. Gen. Pl. p. 407.—Sm. Gr. of Bot. p. 189.—Lindl. Syn. p. 228.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 242.—Hook. Brit. Fl. (4th ed.) p. 419.—QUERNEALES; type, BETULACEÆ; Burn. Outl. of Bot. v. ii pp. 523 & 529.

GEN. CHAR. *Barren Flowers* (figs. 1 & 3.) numerous, forming a loose, cylindrical catkin (fig. 1.), imbricated all round, with ternate, concave *scales* (see fig. 3.); the middle one largest, egg-shaped. *Corolla* none. *Filaments* 10 to 12, shorter than the middle scale, to which they are attached. *Anthers* roundish, 2-lobed. *Fertile Flowers* (figs. 2 & 5.) in similar, but more dense, catkins; scales horizontal, peltate, dilated outwards, 3-lobed, 3-flowered (see fig. 5). *Corolla* none. *Germen* (see fig. 5.) compressed, bordered, of 2 cells. *Styles* 2, awl-shaped, downy. *Stigma* simple. *Nut* (see figs. 6 & 7.) oblong, deciduous, winged at each side, of 1 cell, with a solitary *kernel*.

The ternate *scales* of the *barren flowered* catkins, destitute of a *corolla*, and bearing, on their middle lobe, from 10 to 12 stamens; the 3-lobed, 3-flowered *scales* of the *fertile flowered* catkin; the 2 *styles;* and the winged, deciduous, 1-seeded *nut;* will distinguish this from other genera in the same class and order.

Two species British.

BE'TULA ALBA. White Birch. Common Birch.

SPEC. CHAR. Leaves egg-shaped, acute, somewhat deltoid, unequally serrated, nearly smooth.

Engl. Bot. t. 2198.—Fl. Dan. t. 1167.—Linn. Sp. Pl. p. 1393.—Huds. Fl. Angl. (2nd ed.) p. 416.—Evelyn's Silva, p 225, with a plate.—Willd. Sp. Pl. v. iv. pt. 1. p. 462.—Sm. Fl. Brit. v. iii. p. 1012.; Engl. Fl. v. iv. p. 153.—With. (7th edit.) v. ii. p. 246.—Gray's Nat. Arr. v. ii. p. 243.—Lindl. Syn. p. 229.—Hook. Brit. Fl. p. 409.—Macr. Man. Brit. Bot. p. 208.—Lightf. Fl. Scot. v. ii. p. 572.—Sibth. Fl. Oxon. p. 64.—Abbot's Fl. Bedf. p. 207.—Davies' Welsh Bot. p. 89.—Purt. Midl. Fl. v. ii. p. 455.—Relh. Fl. Cant. (3rd ed.) p. 390.—Hook. Fl. Scot. p. 274.—Phill. Syl. Florif. v. i. p. 123.—Grev. Fl. Edin. p. 203.—Syl. Sket. p. 45.—Loud. Arb. et Frutic. Brit. p. 1601. f. 1547.—Fl. Devon. pp. 155 & 135.—Johnst. Fl. Berw. v. i. p. 208 —Winch's Fl. of Northumb. and Durh. p. 62.—Walker's Fl. of Oxf. p. 283.—Bab. Fl. Bath. p. 46.—Dick. Fl. Abr. p. 56.—Irv. Lond. Fl. p. 115. —Luxf. Reig. Fl. p. 82.—Mack. Catal. Pl. Irel. Addenda; Fl. Hibern. p. 242.—*Betula*, Ray's Syn. p. 443.—Johnson's Gerarde, p. 1478,

LOCALITIES.—In woods and hedges, especially in heathy soils and in mountainous countries.

Tree.—Flowers in April and May.

From 20 to 50 feet, or more, high, with the cuticle of the trunk whitish, and peeling off in thin laminæ. *Branches* subdivided,

Fig. 1. A Barren-flowered Catkin.—Fig. 2. A Fertile-flowered one.—Figs. 3 and 4. Barren Flowers.—Fig. 5. A Fertile Flower.—Figs. 6 and 7. Seeds.—Figs. 5 and 7, *a little magnified.*

* From *betu*, the Celtic name for the Birch. It is the badge of the Highland Clan BUCHANAN. † See folio 83, note †.

long, slender, pliant, and flexible, covered, when young, with a short, close down. *Leaves* alternate, egg-shaped, or slightly triangular, pointed, unequally, or rather doubly, serrated, smooth above, a little downy beneath; assuming a golden colour in Autumn. *Catkins* terminal, stalked, pendulous; the barren flowered ones appear in the Autumn at the ends of the twigs, but do not expand their flowers till the fertile ones appear in the Spring, these fall all to pieces when ripe, and scatter the numerous winged *seeds*.

There is a variety of this tree in which the branches are elegantly pendent, and being a taller tree, and of more rapid growth than the common kind, is sometimes preferred for planting.—An excellent portrait of a full-grown Tree of this pendulous variety is given by Mr. Loudon, in the 233rd plate of his incomparable work, the "Arboretum et Fruticetum Britannicum."

The common Birch is a native of Europe, from Lapland to the subalpine parts of Italy. It is found also in Asia, in Siberia, as far as the Altaic Mountains; and also in the Himalayas; but not in Africa. In some parts of Russia, Mr. Loudon informs us, immense tracts are covered with this tree alone; and in the neighbourhood of Moscow, it forms the prevailing tree in all the woods belonging to the country residences of the nobles.

The wood of the Birch is firm, tough, and white, and is useful for many purposes. The Scots Highlanders are said to make every thing of it; they build their houses of it; make their beds, chairs, tables, dishes, and spoons of it; construct their mills of it; make their carts, ploughs, harrows, gates and fences, of it. It is also used in many other parts of the country in machinery, turnery, wheel-work, and for lasts, pattens, woodden shoes, and such purposes. It is likewise much used in collieries for props and waggon-road sleepers. It is an excellent fuel, burning very clear, and emitting less smoke than most other woods. In the smoking of herrings, in particular, Birch is preferred to all other kinds of wood. It makes the best charcoal, and its soot is a good lamp-black for printers' ink. The young pliant twigs make excellent besoms, and rods. The birchen-rod has been used as an instrument of correction at schools from the earliest ages, but its use, both in schools and private families, is now fast passing away, together with many other barbarous practices of our ancestors. The bark appears indestructible, (from its resinous quality,) and is extremely useful to the inhabitants of the north of Europe. In Kamschatka hats and drinking cups are formed of it. The Swedish fishermen manufacture shoes of it. The Norwegians cover their houses with it. Torches are made of it, sliced and twisted together, it being highly inflammable. The portable canoes of the North American Indians are commonly constructed with this material. The inner bark (some say the cuticle or outer bark) was one of the materials on which the ancients wrote before the invention of paper; and, according to Pliny and Plutarch, the works composed by Numa, (who had forbidden his body to be burnt,) were discovered in the tomb in a legible state, 400 years after his interment. The sap of the Birch is made into beer, wine, and vinegar; and a sugar is extracted, and a spirit distilled from it. A pyrogenous oil is procured from the bark by distillation, to which Russia leather, dressed with it, is said to owe its remarkable odour.—I have observed the following fungi on the leaves of the Birch in the vicinity of Oxford: *Dothidea betulina*; *Erineum betulinum*; *E. tortuosum*; and *Uredo ovata*.

The *Natural Order*, Betuli'neæ, is composed of dicotyledonous *trees* or *shrubs*, the *leaves* of which are simple, with their primary veins running straight from the midrib to the margin; their *stipulæ* are deciduous. Their *flowers* unisexual, monœcious, and amentaceous; the barren ones sometimes having a membranous calyx. The *stamens* are distinct, scarcely ever united. The *ovary* superior, of 2 cells; the *ovules* definite, and pendulous; with 2 *stigmas*. The *fruit* is membranous, indehiscent, and 1-celled. The *seeds* pendulous, naked, and without albumen; with a straight *embryo*; and a superior *radicle*.



Oxalis Acetosella Wood-Sorrel 4

J.Rujell Del. Pub.d by W.Hooker Botanic Garden, Oxford. 1836 W.Willis Sc.

OX'ALIS*.

Linnean Class and Order. DECA'NDRIA†, PENTAGY'NIA.

Natural Order. OXALI'DEÆ, Dec. Prod. v. i. p. 689.—Lindl. Syn. p. 59.; Intr. to Nat. Syst. of Bot. p. 140.—Loud. Hort. Brit. p. 507.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 752.—Mack. Fl. Hib. p. 58.—Hook. Brit. Fl. (4th edit.) p. 402.—GERANIACEÆ, Rich. by Macgilliv. p. 474.—GERANIA AFFINIA, Juss. Gen. Pl. p. 269.—Sm. Gram. of Bot. pp. 147 & 148.—ROSALES; subord. RHŒADOSÆ; sect. GRUINÆ; type, OXALIDACEÆ; Burn. Outl. of Bot. v. ii. pp. 614, 784, 808, & 810.—GRUINALES, *Linn.*

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 1 sepal, in 5, deep, pointed, permanent segments. *Corolla* (fig. 2.) of 5, upright, blunt, rather oblique petals, much longer than the calyx; often united by the bases of their claws; spiral in the bud. *Filaments* (see figs. 3 & 4.) 10, hair-like, sometimes combined, upright, the 5 outermost shortest, and often protuberant at the back or summit. *Anthers* roundish, furrowed, incumbent. *Germen* (fig. 5.) superior, oblong or roundish, with 5 angles. *Styles* (fig. 5.) 5, thread-shaped, either longer or shorter than the longest stamens. *Stigmas* blunt, downy. *Capsule* (fig. 6.) with 5 angles, and 5 cells, membranous, bursting lengthwise at the angles. *Seeds* roundish, polished, with an elastic *arillus*, in some species solitary, in others several in each cell.

Distinguished from other genera in the same class and order, by the 5-cleft *calyx;* the *corolla* of 5 petals, often connected at the base; the angular, 5-celled *capsule;* and the tunicated *seeds.*

Two species British.

OX'ALIS ACETOSE'LLA. Sour Wood-sorrel. Common Wood-sorrel. Wood-sour. Sour Trefoil. Stubwort. Alleluja. Lujula. Cuckoo-bread ‡.

SPEC. CHAR. Leaves all radical, ternate; leaflets inversely heart-shaped, hairy. Scape single-flowered. Root of many scaly joints.

Engl. Bot. t. 762.—Curt. Fl. Lond. t. 111.—Woodv. Med. Bot. v. i. p. 56. t. 20.—Jacq. Oxal. p. 114. t. 80. f. 1.—Linn. Sp. Pl. p. 620.—Huds. Fl. Angl. (2nd ed.) p. 198.—Willd. Sp. Pl. v. ii. pt. 1. p. 780.—Sm. Fl. Brit. v. ii. p. 491.; Engl. Fl. v. ii. p. 323.—Lindl. Syn. p. 59.—Hook. Brit. Fl. p. 211.—Macr. Man. Brit. Bot. p. 45.—Light. Fl. Scot. v. i. p. 237.—Sibth. Fl. Oxon. p. 144.—Abbot's Fl. Bedf. p. 100,—Thornt. Fam. Herb. p. 461, with a figure.—Purt. Midl. Fl. v. i. p. 216.—Davies' Welsh Bot. p. 43.—Relh. Fl. Cant. (3rd ed.) p. 182.—Hook. Fl. Scot. p. 141.—Grev. Fl. Edin. p. 101.—Fl. Devon. pp. 77 & 181.—Johnst. Fl. of Berw. v. i. p. 99.—Winch's Fl. of Northumbl. and Durh. p. 30.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 765.—Walker's Fl. Oxf. p. 127.—Trev. on Veg. Faroe Islands, p. 8.—Bab. Fl. Bath. p. 11.—Dick. Fl. Abred. p. 38.—Irv. Loud. Fl. p. 173.—Luxf. Reig. Fl. p. 40.—Cow. Fl. Faver. p. 40.—Mack. Catal. of Pl. Irel. p. 45.;

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. Calyx, Stamens, and Pistils.—Fig. 4. A single Stamen.—Fig. 5. Germen, Styles, and Stigmas.—Fig. 6. Capsule.—All, except 2 and 6, a little larger than nature.

* From *oxus*, Gr.; *sharp* or *acid*. † See folio 37, note †.

‡ This plant, says GERARDE, is called by herbalists, *Alleluja*, and *Cuckoo's Meat*, because it springs forth and flowers with the singing of the cuckoo, at which time *Alleluja* also was wont to be sung in churches. The names *Alleluja* and *Lujula* are, however, corrupted from the Calabrian name *Juliola*. It is probably called *Stubwort* from its covering the ground among the stubs in coppices, when they are cut down. DON.

Fl. Hibern. 58.—*Oxalis vulgaris*, Gray's Nat. Arr. v. ii. p. 630.—*Oxalis alba*, Ray's Syn. p. *281.—Johnson's Gerarde, p. 1091.

Localities.—In woods, hedges, and among bushes on heaths, especially in shady places; common.

Perennial.—Flowers in April and May.

Root horizontal, scaly, white, or often of a bright red colour, branched, with many very fine fibres. *Stem* none. *Leaves* ternate, on long, slender, hairy, radical, purplish petioles; *leaflets* inversely heart-shaped, hairy, bright green above, often purplish beneath, drooping at night. *Scape* from 2 to 4 inches high, hairy, 1-flowered, with 2 small opposite bracteas, considerably below the flower. *Flowers* solitary, drooping, of a delicate white, beautifully veined with pink or purple; the petals adhering together by a little glandular swelling, at each side of their short yellow claws, which are inserted into the receptacle separate and distinct. *Stamens* and *Styles* hair-like. *Capsule* egg-oblong, blunt, 5-celled, 5-cornered, bursting longitudinally at the angles. *Seeds* 2, sometimes 3, in each cell, egg-shaped, compressed, blackish, shining; invested by a fleshy white *arillus*, at first smooth, and closed on every side, but at length opening elastically at the tip, and rolling back, wrinkles up and throws off the seed with considerable force.

It is said to vary with bluish and purple coloured flowers. See *Ray's Syn.* p. 281,; and *Merrett's Pinax*, p. 99. This variety is smaller than the common one, and flowers later.

Oxalis Acetosella is a delicate and pretty plant, native of other parts of Europe, as well as of Britain; it is also found in Japan. Mr. Curtis observes, that it continues to produce seeds during the greatest part of the Summer, without any appearance of expanded blossoms. As soon as the plant has done flowering, the scape bends down, but when the seed is ripe it again becomes upright. Linnæus remarks, that the flowers shut themselves up at the approach of rain; he says, that "even when the weather changes in a moment from sunshine to rain, though before expanded, they immediately close." The leaves are powerfully and gratefully acid, making a refreshing and wholesome conserve with fine sugar. Boiled with milk, they make an agreeable whey, which may be used in inflammatory diseases, in which vegetable acids are beneficial. They also afford the "essential Salt of Lemons," used to take iron-moulds out of linen.

Some Botanists are of opinion that this was the ancient shamrock of Ireland, as old authors say it was a sour indigenous plant, showing itself on St. Patrick's day, and was eaten.

The *Natural Order*, Oxalide.e, is composed of dicotyledonous *herbaceous plants* or *under shrubs*, with alternate, compound, or sometimes simple, *leaves*. Their *ealyx* is formed of 5 equal, permanent sepals, which are often united at the base. The *corolla* consists of 5, hypogynous, equal, unguiculate petals, which are twisted in the bud. The *stamens* are 10, and are frequently more or less combined, those opposite the petals longer than the others, and forming an inner series; their *anthers* 2-celled, and innate. The *ovary* is free, with 5 angles, 5 cells, and 5 thread-shaped styles, with capitate or somewhat bifid *stigmas*. The *fruit* is a membranous capsule, of 5 cells, with from 5 to 10 valves, opening longitudinally at the angles. The *seeds*, which are few, are attached to the axis, and enclosed within a fleshy arillus, which curls back at the maturity of the fruit, and expels the seeds with elasticity. The *albumen* is between cartilaginous and fleshy; the *embryo* inverted, with a long superior radicle, and foliaceous *eotyledons*.



Anthemis Cotula. *Stinking Chamomile.* ☉

C. Mathews, Del. & Sc. Pub.d by W. Baxter Botanic Garden. Oxford. 1838.

A'NTHEMIS*.

Linnean Class and Order. SYGENE'SIA†, POLYGA'MIA, SUPE'RFLUA‡.

Natural Order. COMPO'SITÆ§, tribe, CORYMBI'FERÆ‖, *Juss*—Lindl. Syn. pp. 140 & 142.; Introd. to Nat. Syst. of Bot. pp. 197 and 199.—Mack. Fl. Hibern. p. 142.—Hook. Brit. Fl. (4th ed.) p. 410.—COMPO'SITÆ; subord. ANTHEMI'DEÆ, Loud. Hort. Brit. pp. 520 & 522.—SYNANTHE'REÆ; tribe, CORYMBI'FERÆ, Rich. by Macgilliv. pp. 454 & 455.—CORYMBIFERÆ, sect 5. Juss. Gen. Pl. pp. 177 & 185.—Sm. Gram. of Bot. p. 121 & 124; Engl. Fl. v. iii. p. 334.—SYRINGALES; subord. ASTEROSÆ; sect. ASTERINÆ; subsect. ASTERIANÆ; type, ASTERACEÆ; Burn. Outl. of Bot. pp. 900, 901, 920, 924, & 926.—COMPO'SITÆ, *Linn.*

GEN. CHAR. *Involucrum (common calyx)* (fig. 1.) hemispherical, scales nearly equal, closely imbricated, membranous at their margins. *Corolla* (fig. 2.) compound, radiant; *florets* of the disk numerous, perfect, tubular, with 5 equal spreading segments (see fig. 4.); *florets* of the ray numerous, strap-shaped, spreading, abrupt, generally with 3 teeth (see fig. 5). *Filaments* in the tubular florets only, very short, hair-like (see fig. 6). *Anthers* (see fig. 6.) in a cylindrical tube. *Germen* (see figs. 4 & 6.) in all the florets inversely egg-shaped. *Style* (see fig. 6.) thread-shaped, not prominent. *Stigmas* spreading, oblong, simple or divided. *Seed-vessel* none but the unaltered calyx. *Seed* (fig. 8.) in all the florets inversely egg-shaped, rather compressed, generally with a slight border, or crown. *Receptacle* (fig. 7.) more or less convex, or conical, beset with spear-shaped, pointed, chaffy scales, one to each tubular floret, and generally about the same height.

The hemispherical *involucrum*, with closely imbricated, nearly equal scales, membranous at the margin; the numerous, oblong *florets* of the ray; the convex, chaffy *receptacle;* and the *seed* usually crowned with a slight border; will distinguish this from other genera in the same class and order.

Five species British.

A'NTHEMIS CO'TULA. Stinking Chamomile. Stinking Mayweed. Mather.

SPEC. CHAR. Leaves doubly pinnatified, slightly hairy; segments awl-shaped, spreading. Receptacle conicle; scales bristle-shaped. Seeds without any border.

Fig. 1. Involucrum.—Fig. 2. Corolla.—Fig. 3. Vertical Section of the Disk, showing the Receptacle, with its Florets and Scales.—Fig. 4. A Floret of the Disk.—Fig. 5. A Floret of the Ray.—Fig. 6. Stamens and Pistil.—Fig. 7. Receptacle.—Fig. 8. Seed.—Figs. 4 & 8, *magnified.*

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* From *anthemon*, Gr. a *flower;* from the profusion of its blossoms. HOOKER.

† See folio 91, note †.

‡ See folio 36, note ‡.

§ See folio 27, *a.*

‖ See folio 36, *a.*

Engl. Bot. t. 1772.—Curt. Fl. Lond. t. 329.—Linn. Sp. Pl. p 1261.—Huds. Fl. Angl. (2nd ed.) p. 373.—Willd. Sp. Pl. v. iii. pt. iii. p. 2181.—Sm. Fl. Brit. v. ii. p. 906.; Engl. Fl. v. iii. p. 458.—With. (7th ed.) v. iii. p. 954.—Hook. Brit. Fl. p. 367.—Lightf. Fl. Scot. v. i. p. 495.—Sibth. Fl. Oxon. p. 259.—Abb. Fl. Bedf. p. 186.—Davies' Welsh. Bot. p. 81.—Purt. Midl. Fl. v. ii. p. 397.—Relh. Fl. Cant. (3rd edit.) p. 351.—Hook. Fl. Scot. p. 247.—Grev. Fl. Edin. p. 182.—Fl. Devon. pp. 141 & 161.—Winch's Fl. of Northumb. and Durh. p. 55.—Walker's Fl. of Oxf. p. 248.—Irv. Lond. Fl. p. 154.—Cow. Fl. of E. Kent, p. 21.—Mack. Catal. Pl. Irel. p. 75.; Fl. Hibern. p. 152.—*Maruta fœtida*, Gray's Nat. Arr. v. ii. p. 456.—Lindl. Syn. p. 150.—Macr. Man. Brit. Bot. p. 129.—Bab. Fl. Bath. p. 26.—*Chamæmelum fœtidum*, Ray's Syn. p. 185.—*Cotula fœtida*, Johnson's Gerarde, p. 757.

Localities.—In waste places, corn-fields, dunghills, and by road-sides; common.

Annual.—Flowers in June, July, and August.

Root tapering, with branched fibres. *Stem* upright, from 1 to 2 feet high, branched, leafy, angular and furrowed, smooth, solid. *Leaves* alternate, sessile, bright green, smooth, or slightly hairy, doubly pinnatifid, and cut; the segments narrow, flat, a little succulent, spreading and rather distant, not crowded or parallel, somewhat bristle-pointed. *Flowers* solitary, on upright, terminal, finely grooved, slightly downy stalks. *Involucrum* (fig. 1.) more or less hairy, its scales nearly equal, blunt, pale green, their margins brown, scarcely membranous. *Disk* (fig. 3.) convex, its *florets* (fig. 4.) lemon-coloured, rather longer, when expanding, than the slender bristle-shaped, or awl-shaped, greenish scales at their base (see fig. 3). *Florets* of the *ray* (fig. 5.) white, elliptical, 3-toothed, bent back close to the stalk at night, and continuing in that state till morning. *Seeds* (fig. 8.) inversely egg-shaped, bluntly 4-cornered, brown, wrinkled, or sometimes rough with minute tubercles, without any border or crown, but terminated by a simple pore. *Receptacle* (fig. 7.) nearly cylindrical, beset on the upper part, with slender, permanent, chaff-like scales.

The florets of the ray have been observed to vary much in length and breadth, and it has sometimes been found with all the florets strap-shaped.

The whole plant has a fetid smell, and is said to blister the hands of the reapers, or of others who may happen to gather it. If it be examined with a microscope, it will be found to be sprinkled all over with little glands, in which the acrid matter most probably resides. It is a strong and active bitter: a decoction given in the dose of a tea-cup full, will produce copious vomiting and perspiration; and powerfully promotes the action of an emetic. Its reputed efficacy in rheumatism is owing to its sudorific effect.

Toads are said to be partial to this plant; but it is very ungrateful and displeasing to bees. According to the observations of Linnæus, goats and sheep are not fond of it; horses, cows, and swine refuse it.

It is one of those troublesome weeds which sometimes over-run cornfields to that degree, as greatly to diminish the crop; it ought, therefore, to be extirpated with great diligence. See *Curt. Fl. Lond.*, and *With. Bot. Arr.*



Medicago sativa Purple Medick. 4

J. Rufsell, Del. Pub.d by W. Baxter, Botanic Garden Oxford 1839. W. Wilkins, Sc.

MEDICA'GO*.

Linnean Class and Order. DIADE'LPHIA †, DECA'NDRIA.

Natural Order. LEGUMINO'SÆ, Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259.—Loud. Hort. Brit. p. 509.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—LEGUMINA'CEÆ, Loud. Arb. Brit. p. 561.—PAPILIONA'CEÆ‡, *Linn.*—ROSALES; sect. CICERINÆ; subsect. LOTIANÆ; type, LOTACEÆ; subtype, LOTIDÆ; Burn. Outl. of Bot. pp. 614, 638, 642, & 644.

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 1 sepal, somewhat cylindrical, with 5 straight, pointed, nearly equal teeth, permanent, unchanged. *Corolla* (fig. 2.) of 5 petals, deciduous; standard (fig. 3.) egg-shaped, ascending, undivided, with a short broad claw; wings (fig. 4.) obovate, cohering by their lower edges; keel (fig. 5.) of 2 combined petals with separate claws, oblong, blunt, depressed by the swelling germen, and finally spreading widely from the standard. *Filaments* (fig. 6.) 10; 9 united almost to their summits into one split compressed tube; the tenth hair-like, distinct. *Anthers* small, roundish. *Germen* stalked, oblong, compressed, incurved or spiral, enfolded by the filaments, starting elastically from the keel, and forcing back the standard, terminating in a short, awl-shaped, straight, ascending *style*. *Stigma* terminal, minute, simple. *Legume* (fig. 8.) compressed, inflexed, falcate, or spirally twisted, of 1 cell, and 2 valves. *Seeds* (fig. 9.) several, often numerous, kidney-shaped, smooth.

Distinguished from other genera in the same class and order, by the falcate or spirally twisted *Legume*.

Seven species British.

MEDICA'GO SATI'VA. Cultivated Medick. Purple Lucerne. Burgundy Trefoil. Horned Clover.

SPEC. CHAR. Stem upright, smooth. Leaflets oblong, toothed. Clusters upright. Legumes smooth, slightly spirally twisted.

Engl. Bot. t. 1749.—Mart. Fl. Rust. t. 48.—Linn. Sp. Pl. p. 1096.—Huds. Fl. Angl. (2nd ed.) p. 330.—Willd. Sp. Pl. v. iii. pt. II. p. 1404.—Sm. Fl. Brit. v. ii. p. 795.; Engl. Fl. v. iii. p. 317.—With. (7th ed.) v. iii. p. 865.—Gray's Nat. Arr. v. ii. p. 604.—Lindl. Syn. p. 82. Hook. Brit. Fl. p. 333.—Macr. Man. Br. Bot. p. 52.—Abb. Fl. Bedf. p. 164.—Dickson's Pract. Agricul. v. ii. p. 875. t. 20.—Davies' Welsh Bot. p. 72.—Purt. Midl. Fl. v. i. p. 347 —Hook. Fl. Scot. p. 220.—Johnst. Fl. of Berw. v. i. p. 165.—Winch. Fl. of Northumbl. and Durh. p. 49.—Loud. Encycl. of Agricul. (2nd ed.) p. 877. parag. 5574, with a figure.—Baxt. Lib. of Agricul. and Horticul. Knowl. (2nd ed.) p. 418.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 168.—Walker's Fl. of Oxf. p. 216.—Perry's Pl. Varvic. Selectæ, p. 63.—Bab. Bl. Bath. p. 12.—Irv. Lond. Fl. p. 179.—Luxf. Reig. Fl. p. 65.—Mack. Catal. Pl. Irel. p. 68.; Fl. Hiberu. p. 80.—*Trifolium Burgundiacum*, Johns. Gerarde, p. 1189.

LOCALITIES.—In meadows, pastures, hedges, ditch-banks, and the borders of fields, in dry calcarious soils, but scarcely a native.—*Bedfordsh.* Pastures, com-

Fig. 1.—Calyx.—Fig. 2. A separate Flower.—Fig. 3. Standard.—Fig. 4. One of the Wings.—Fig. 5. The Keel.—Fig. 6. Stamens.—Fig. 7. Style.—Fig. 8. Legume.—Fig. 9. Seeds.

* So called by TOURNEFORT from *Medica*, the more proper name of the plant, (*medike* of DIOSCORIDES,) it having been originally introduced into Greece by the MEDES, in the time of DARIUS HYDASPES. WITHERING.

† See folio 77, note †. ‡ See folio 117, note ‡.

man: Rev. C. Abbot.—*Cumberland;* Fields near Whitehaven: Mr. Watson, in N. B. G.—*Devon;* Hedge-bank by the road-side, just over New Bridge from Barnstable; and in a field near the old elm at Newport: *ibid.*—*Durham;* Near Silksworth; and on the Ballast-hills of Tyne and Wear: N. J. Winch, Esq. At Croft: Rev. J. Symmons. Field near Marsden, probably introduced: R. B. Bowman, in N. B. G.—*Kent;* Meadows, originally cultivated: *Fl. Ton.* Near Rochester: N. J. Winch, Esq. in N. B. G. Charlton Chalk-pit: *Fl. Metr.* Gravel-hill, between Swanscomb and Northfleet: *ibid.*—*Leicestersh.* Near Lutterworth, rare: Rev. A. Bloxam: *ibid.*—*Norfolk;* About Norwich, in several places: G. Cooper, in N. B. G.—*Northumberland;* On the Ballast-hills of Tyne; in a field above the quarry at Sunnyside, about a mile S. of Berwick: Dr. Thompson. Near Gun's Green Hill: Rev. A. Bairo.—*Notts;* Mansfield and Hoverington (Ordoyno); in a plantation on Sutton Forest: Dr. Howitt, in N. B. G.—*Somersetshire;* Naturalised on the Burnham Sand-hills: J. C. Collins, in N. B. G. In many places near Bath: C. C. Babington, Esq.—*Surrey;* Behind Juniper Hill: N. J. Winch, Esq. in New Bot. Guide. About Croydon; fields between Hammersmith Bridge and Kew; and in Dorking Chalk-pit: *Fl. Metr.* Near Reigate: Mr. G. Luxford.—*Warwicksh.* Grafton: T. Purton, Esq.—*Wilts;* Near Great Bedwin: W. Bartlett, Esq.—*Worcestersh.* Cleve: T. Purton, Esq.—*Yorksh.* Leeds: H. Denny, Esq. in N. B. G.—WALES. *Angleseo;* On Friar's Demesne: Rev. H. Davies.—SCOTLAND. *Edinburghsh.* Figget Whins: J. Woodforde, in N. B. G.—*Forfarsh.* Near Dundee: Mr. G. Don.—*Lanarksh.* Meadows and pastures, occasionally; about Glasgow, but not indigenous: *Hook. Fl. Scot.*—*Linlithgowsh.* Banks of the Union Canal, ten miles from Edinburgh: R. Maughan, in N. B. G.—IRELAND. Near Coolum, Waterford: Right Honourable the Countess of Carrick. Plentiful at Portmarnock in sandy fields: Mr. J. T. Mackay.

Perennial.—Flowers in June and July.

Root somewhat woody. *Stems* from 1 to 3 feet high, upright, or somewhat reclining, branched, leafy, roundish, striated, smooth, or sometimes hairy, especially when in a young state. *Leaves* alternate, ternate, on shortish petioles, accompanied at their base by a pair of spear-shaped, or half harrow-shaped, pointed, sometimes toothed, *stipulas*. *Leaflets* oblong, inclining to wedge-shaped, more or less pointed, entire at the base, serrated upwards, the mid-rib lengthened into a thorn-like point, clothed with silky hairs on both sides, but especially beneath. *Clusters (racemes)* upright, of many bluish-purple *flowers*, each on a short partial stalk, with a small bristle-shaped bractea at its base. *Legume* (fig. 8.) twisted spirally, with 2 or 3 distant turns, silky while young. *Seeds* several, flattish.

This species, which is now become naturalised in many parts of Britain, was, we are informed by Miller, introduced into this country from France, about the year 1650. It is said to be the *Medica* of Virgil, Columella, Palladius, and other ancient writers on Husbandry, who have extolled it as an excellent fodder for cattle, and have given directions for the cultivation of it in those countries where they lived. Its cultivation has also been strongly recommended by modern agricultural writers, for the purpose of feeding cattle, but it is not yet generally adopted. It requires a deep rich soil, and, in such, will continue to flourish many years, if kept free from weeds. It will yield a heavy crop of green food by the first of May, with three other cuttings during the Summer, and is said to be much superior to clover (see t. 283.) as food for cows, not only increasing the quantity of milk and its richness in cream, but also the quality of the butter. It is also advantageously given to horses, and pigs are said to devour it greedily. As a dry fodder, it is capable of affording much assistance, and, as an early food for ewes and lambs, may be of great value in particular cases. Care must be taken that too much be not given in its green state, or, like clover, cattle may be hoven or blown with it. It is said to make good hay, if cut at a proper season, which is immediately after it comes into blossom, and being a plant of early growth it will be ready for that purpose before sainfoin or clover; and if made well, will be preferred by horses, sheep, and neat cattle, to any other food. See *Baxt. Lib. of Agri. & Hort. Knowl.*; & *Loud. Ency. of Agricul.*



Acorus Calamus. Sweet Sedge. ½

I. Russell, Del. Pub.d by W. Baxter, Botanic Garden, Oxford 1839 W. Wills Sc.

A'CORUS *.

Linnean Class and Order. HEXA'NDRIA †, MONOGY'NIA.

Natural Order. AROI'DEÆ, Juss. Gen. Pl. p. 23.—Sm. Gram. of Bot. p. 67.—Lindl. Syn. p. 246.; Introd. to Nat. Syst. of Bot. p. 286.—Rich. by Macgilliv. p. 388.—Loud. Hort. Brit. p. 541.—Mack. Fl. Hibern. p. 261.—Hook. Brit. Fl. (4th edit.) p. 422.—JUNCALES; sect. ACORINÆ; type, ORONTIACEÆ; Burn. Outl. of Bot. v. i. pp. 403, 408, & 409.—PIPERITÆ, *Linn.*

GEN. CHAR. *Calyx* none. *Spadix* naked, nearly cylindrical, simple, covered with sessile flowers, deciduous. *Corolla (Perianthium)* (fig. 1.) inferior, of 6, equal, blunt, concave, lax, petals, which are rather thicker in the upper part; and protuberant at the back. *Filaments* (see fig. 1.) 6, thickish, upright, about the length of the petals, and alternate with them. *Anthers* terminal, of 2 roundish lobes. *Germen* superior, sessile, elliptic-oblong, the length of the stamens. *Style* none. *Stigma* hemispherical, obscurely 3-lobed. *Capsule* (figs. 2 & 3.) triangular, abrupt, membranous, of 3 cells, not bursting. *Seeds* several, egg-oblong.

The *spadix* covered with numerous sessile *flowers;* the naked, inferior *corolla*, of 6 blunt petals; the sessile *stigma;* and the indehiscent, many-seeded *capsule;* will distinguish this from other genera in the same class and order.

One species British.

A'CORUS CA'LAMUS. Common Sweet Flag. Sweet Rush. Myrtle Flag. Calamus Aromaticus.

SPEC. CHAR. Leafy summit of the scape rising high above the spadix.

Engl. Bot. t. 356.—Woodv. Med. Bot. v. iii. p. 472. t. 173.—Linn. Sp. Pl. p. 462.—Huds. Fl. Angl. (2nd edit.) p. 147.—Willd. Sp. Pl. v. ii. pt. 1. p. 199.—Sm. Fl. Brit. v. i. p. 373.; Engl. Fl. v. ii. p. 157.—With. (7th edit.) v. ii. p. 436.—Lindl. Syn. p. 246.—Hook. Brit. Fl. p. 159.—Macr. Man. Brit. Bot. p. 243.—Leers' Fl. Herb. (2nd edit.) p. 87. t. 13. f. 12.—Sibth. Fl. Oxon. p. 112.—Abb. Fl. Bedf. p. 77.—Thorn. Fam. Herb. p. 353, with a figure.—Relh. Fl. Cant. (3rd ed.) p. 141.—Purt. Midl. Fl. v. iii. p. 31.—Fl. Devon. p. 59.—Walker's Fl. of Oxf. p. 95.—Perry's Pl. Varv. Selectæ, p. 31.—Bab. Fl. Bath. p. 52.—Irv. Lond. Fl. p. 87.—*Acorus undulatus*, Gray's Nat. Arr. v. ii. p. 159.—*Acorus verus sive Calamus officinarum*, Ray's Syn. p. 437.—Warn. Pl. Woodf. p. 2.—*Acorus verus officinis falsò Calamus*, Johnson's Gerarde, p. 62.

LOCALITIES.—In watery places, about the banks of rivers, and in watery ditches; not common.—*Oxfordsh.* Near Dorchester: Dr. SIBTHORP. Plentiful at the further end of Long Meadow, near the footpath going from Oxford to Iffley, 1838: W. B.—*Berks;* Banks of the Isis between Iffley and Sandford: W. B.—*Bedfordsh.* Moat, at the Hassocks Farm. *Cambridgesh.* In the ditch opposite the great gates of Trinity College Walks. In a ditch by Great Founder's Closes, near the House in the Fields. In marshy ground at Chesterton, below the Ferry; nearly opposite Fen Ditton; and above Bat's-bight Sluice.—*Cheshire;* In the river Dee, but rare; at Holford, near Northwich, plentifully.—*Derbysh.* Cutthorpe, near Chesterfield.—*Devon*, New Cut near Exeter; Hain Banks,

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Fig. 1. A separate Flower.—Figs. 2 and 3. Capsules; from GÆRTNER.—All *magnified.*

* From *a*, Gr. *without;* and *korion*, Gr. or *kore*, Gr. *the pupil of the eye*, diseases of which it was supposed to remove.

† See folio 33.

Exeter; and about Biddeford.—*Dorset;* In the river Stour, in two or three places between Blandford and Sturminster Newton.—*Essex;* "On the sides of some ponds on the hill near Mr. WARNER's piece of water, opposite Harts, his house at Woodford Row; and in the river Rhodon, near Woodford Bridge, opposite the 8th mile-stone; but in general not very common." In a pond at Deux Hall, Lamburn; and in a lane between Chigwell and Henhault Forest.—*Herts;* Ponds near Mill-hill and Totteridge.—*Lancash.* In a field at Longford Bridge, near Warrington.—*Leicestersh.* Near the Abbey at Leicester, sparingly. In the Soar above Loughborough and Kegworth, in divers places, especially about Normanton; and between Zouch Mills and Loughborough.—*Middlesex;* On Hampstead Heath. By the Thames at Hampton, abundantly. On Hillington Common; Hounslow Heath; and near Hatefield.—*Norfolk;* Abundantly by the sides of the Yare near Norwich, and other rivers in Norfolk. Sides of the river at Readham, and thence to Norwich.—*Notts;* In many places on the banks of the Trent, from Barton to Colwick; banks of the Erewash, near Eastwood; and in Papplewick Forest.—*Shropsh.* In the Lodge Lake, Tong.—*Somersetsh.* Marches near Glastonbury; Near the late Mr. SOLE's garden, Bath; River-bank below Norfolk Crescen; Old turf-pits near Wadmore; and plentiful in King's Sedgemoor.—*Suffolk;* River-side below Halesworth; By the Waveney between Beccles and Gillingham, and in other places. Ditches near the river at Belton, plentifully; and in a ditch at Burgh Castle.—*Surrey;* About Hedley; by the Thames at Walton, and Hampton; Coulsdon; Putney Heath, in ponds, possibly planted; rivulet between Wimbledon and Richmond Park, abundant; and between Putney and Kingston.—*Sussex;* In a pond on Duncton Common.—*Warwicksh.* In the river at the bottom of Mr. OLDERSHAW's garden at Tamworth.—*Worcestersh.* In the Avon, near Pershore, and at Hanley.—*Yorksh.* Potteric Car, near Doncaster; Ponds at Risby; near Beverly; banks of the river near Househam, the seat of Mr. CHOLMLEY; and near York.—SCOTLAND. In *Ayrshire*.—*Renfrewsh.* Loch Winnoch; and Castle Semple Loch. See *Bot. Guide*, and *New Bot. Guide*, for authorities.

Perennial.—Flowers in June.

Root thick, rather spongy, with many long *fibres*, powerfully aromatic. *Leaves* upright, sword-shaped, 2 or 3 feet high, bright green, near an inch broad, sheathing one another, and usually waved on one side; the midrib nearest the outer margin. *Scape* similar to the leaves, except being thicker below the *spadix*, and not quite so tall. *Spadix* proceeding from the edge of the scape, 2 or 3 inches long, tapering, closely studded with numerous, small, pale green *flowers*, set in spiral lines. *Petals* membranous, concave, appearing truncated. *Capsule* oblong, triangular, of 3 cells, containing numerous oval seeds.

This is said to be our only indigenous plant which is at the same time both aromatic and bitter. It contains a considerable quantity of essential oil, that imparts the delightful fragrance for which it is peculiar, to the farinaceous substance abounding in its enlarged rhizoma (root-stock). Professor BURNETT, in his very interesting *Outlines of Botany*, v. i. p. 410, informs us, that it is consumed in great quantities by perfumers and the makers of hair-powder; and that in the neighbourhood of London, it has been almost wholly destroyed by their continual maraudings. The dried *root* powdered, is used by the country people in Norfolk, for curing the ague; and the fresh root candid is said to be employed at Constantinople as a preservative against epidemic diseases. The leaves have a sweet fragrant smell, more agreeable, though weaker, than that of the roots; this has recommended them for garlands, and for strewing on the floor of the Cathedral at Norwich, and some of the streets, on the Mayor's day, in June.



Fagus sylvatica. Common Beech h

J. Rufsell. Del. Pub.d by W. Baxter Botanic Garden Oxford 1839 W. W. Ellis Sc.

FA'GUS*.

Linnean Class and Order. MONŒ'CIA †, POLYA'NDRIA.

Natural Order. CUPULI'FERÆ, *Richard.*—Lindl. Syn. p. 239; Introd. to Nat. Syst. of Bot. p. 97.—Rich. by Macgilliv. p. 545.—AMENTA'CEÆ, *Linn.*—Juss. Gen. Pl. p. 407.—Sm. Gram. of Bot. p. 189.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 242.—Hook. Brit. Fl. (4th ed.) p. 419.—QUERNEALES; sect. QUERCINÆ; type, CORYLACEÆ; Burn. Outl. of Bot. v. ii. pp. 523 & 531.

GEN. CHAR. *Barren Flowers* (figs. 1 & 2.) in a globose *catkin*. *Calyx* (figs. 2 & 3.) of 1 sepal, bell-shaped, in 5 or 6 segments. *Corolla* none. *Filaments* (see figs. 2 & 3.) from 5 to 12, or more, hair-like, longer than the calyx. *Anthers* roundish, or oblong, of 2 lobes. *Fertile Flowers* (figs. 4 & 5.) 2 or 3 together, within a 4-lobed, prickly *involucrum (outer calyx* of SM.*)* (see figs. 5 to 8). *Calyx (inner calyx* of SM.*)* (see figs. 5 & 9.) single, of 5 or 6 minute lobes, which are downy internally. *Germen* (fig. 6.) incorporated with the calyx, triangular, 3-celled. *Styles* (see figs. 6 & 9.) 3. *Nuts* (fig. 10.) invested with the enlarged involucrum. (fig. 8.) upright, 3-angled, crowned at the tip (see fig. 9.) with the hairy lobes of the calyx, by abortion, 1-celled; and 1- or 2-seeded.

The *barren flowers* in a close capitate *catkin*, each of a monosepalous, bell-shaped, 5- or 6-lobed calyx, with from 5 to 12 *stamens;* the *fertile flowers* 2 together, in a 4-lobed, prickly *involucrum*, each with a 5- or 6-lobed, downy calyx, adnate to the *germen;* the 3 *stigmas;* and the 3-angled, 1-celled, 1- or 2-seeded *nut;* will distinguish this from other genera in the same class and order.

One species British.

FA'GUS SYLVA'TICA. Wood Beech. Common Beech.

SPEC. CHAR. Leaves egg-shaped, smooth, obsoletely serrated, their margins fringed.

Engl. Bot. t. 1846.—Hunt. Evel. Silva, p. 136, with a plate.—Loud. Arbor. et Frutic. Brit. p. 1950. t. 283.—Linn. Sp. Pl. p. 1416.—Huds. Fl. Angl. (2nd ed.) p. 422.—Willd. Sp. Pl. v. iv. pt. i. p. 459.—Sm. Fl. Brit. v. iii. p. 1028.; Engl. Fl. v. iv. p. 152.—With. (7th ed.) v. ii. p. 576.—Gray's Nat. Arr. v. ii. p. 248.—Lyndl. Syn. p. 239.—Hook. Brit. Fl. p. 408.—Macr. Man. Brit. Bot. p. 216.—Lightf. Fl. Scot. v. ii. p. 584.—Sibth. Fl. Oxon. p. 152.—Abb. Fl. Bedf. p. 210.—Davies' Welsh Bot. p. 90.—Purt. Midl. Fl. v. ii. p. 461.—Relh. Fl. Cant. (3rd. edit.) p. 395.—Hook. Fl. Scot. p. 274.—Grev. Fl. Edin. p. 203.—Sylvan. Sketches, p. 38.—Fl. Devon. pp. 155 & 133.—Johnst. Fl. Berw. v. i. p. 207.—Winch's Fl. of Northumb. and Durham, p. 62.—Walker's Fl. of Oxf. p 283.—Bab. Fl. Bath. p. 46.—Dick. Fl. Abred. p. 56.—Irv. Lond. Fl. p. 114.—Luxf. Reig. Fl p. 82.—Mack. Catal. Pl. Irel. p. 83.; Fl. Hibern. p. 255.—*Fagus*, Ray's Syn. p. 439.—Johnson's Gerarde. p. 1444.—*Beech*, Phil. Pom. Brit. (2nd ed.) p. 64.

Fig. 1. Barren-flowered Catkin.—Figs. 2 & 3. Barren Flowers.—Fig. 4. Fertile-flowered Catkin.—Figs. 5 & 6. Fertile Flowers.—Fig. 7. The Involucrum.—Fig. 8. The same when the fruit is ripe.—Fig. 9. A Nut in an unripe state.—Fig. 10. The same when ripe.

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* *Phagos*, in Greek, from *Phago*, Gr. *to eat;* on account of the nutritive qualities of the fruit.

† See folio 83, note †.

Localities.—In woods, especially on a chalky soil. Abundant in forests in the South of England; yet Cæsar asserts there was, at the time of his invasion, no Beech-timber in Britain. It is scarcely wild in Scotland, or Ireland.

Tree.—Flowers in April and May.

From 50 to 80, or even 100, feet high, when full grown. *Bark* smooth, entire, and of a greyish or whitish colour when fully exposed to the air. *Branches* numerous, generally upright, though in old trees, the lower ones are often horizontal, and sometimes bent down in the middle, and curved towards the extremity. *Leaves* alternate, egg-shaped, shining, thin, waved, scarcely serrated, finely fringed, changing to a brown or russet colour in the Autumn. *Barren Flowers* 3 or 4 together, in round, stalked, drooping heads, or catkins (fig. 1.), of a light brown colour. *Fertile Flowers* above them, solitary, on shorter and stouter stalks than the barren-flowered catkins. *Involucrum* (see figs. 5 & 7.) 4-cleft, clothed with simple pliant prickles. *Stigmas*, 3 in each flower, spreading, acute, and downy. *Nuts* (figs. 9 & 10.) 2, with 3 equal, very sharp angles, and crowned with the calyx (see fig. 9). The *involucrum (outer calyx* of Smith), (fig. 8.), which enlarges and becomes very hard and woody, encloses the *nuts* till they are ripe, when it opens at the summit, in 4 divisions; and after a short time, the nuts drop out, leaving the involucrum (fig. 8.), which contained them, attached to the tree. Seedlings of this tree, when newly sprung up, have a pair of large blunt cotyledons, about three quarters of an inch long, and an inch and a quarter wide; in this state they very much resemble small plants of the *common twayblade (Listera ovata)*.

The Beech is one of the handsomest of our native forest-trees, vieing with the Oak in magnificence and beauty. It is a native of the temperate parts of Europe, from the South of Norway to the Mediterranean Sea, and from England to Constantinople. It is also found in Palestine, Asia Minor, Armenia, and Mazanderan.

In actual utility the Beech follows next to the Oak and the Ash, exceeding the latter in dimensions. It is as necessary to the cabinet-maker and turner, as the Oak is to the ship-builder, or the Ash to the plough and cart-wright. The nuts of the Beech, when eaten in great quantities, occasion head-ache and giddiness; nevertheless, when ground into meal, they make a wholesome bread. They are sometimes roasted and substituted for coffee. In Britain, the only use, at present, made of these nuts (or beech mast) is by turning swine, deer, and poultry, into beech woods, to pick them up; but in France, they form a most important article of domestic consumption, for making oil, which is considered not only excellent for burning in lamps, but also for cooking, and especially for frying fish. The leaves gathered in Autumn, before they are much injured by the frosts, make infinitely better matrasses than straw or chaff, and endure for 7 or 8 years. The catkins of the barren flowers, after they fall from the tree, are, in some places, gathered, dried, and laid up for packing fruit in, which is to be sent to a distance.—For a most complete, and very interesting history, &c. of this tree, illustrated with no less than 40 beautifully executed wood engravings, see Mr. Loudon's *Arbor. et Fruct. Brit.* pp. 1950 to 1980.

Erineum fagineum, Grev. grows on the under side of the leaves of some of the beech trees near Shotover Plantations, near Oxford; and the beautiful moss, *Bryum lgulatum*, produces its fructification abundantly, on dry banks, under their shade, just after entering the carriage-road to Mr. Schutz's from the top of the hill.



Digitaria sanguinalis. Hairy Finger grass. ☉

Pub.d by W.Baxter, Botanic Garden, Oxford. 1838

DIGITA'RIA *.

Linnean Class and Order. TRIA'NDRIA †, DIGY'NIA.

Natural Order. GRAMI'NEÆ, Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71.—Lindl. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. Hibern. p. 294.—Hook. Brit. Fl. (4th ed.) p. 426.—GRAMINA, *Linn.*—GRAMINALES; sect. TRITICINÆ; type, SPARTINACEÆ; Burn. Outl. of Bot. v. i. pp. 362 and 366.

GEN. CHAR. *Spikes* somewhat fascicled. *Spikelets* (see fig. 1) unilateral. *Calyx* (see figs. 1 & 2.) single-flowered, of 3 very unequal, close-pressed, awnless *glumes*, the lower very small, sometimes wanting; the next largest, as long as the corolla, concave, ribbed; the third innermost, opposite to the latter, hardly one-fourth its size, spear-shaped, flattish, slightly ribbed. *Corolla* (figs. 1 & 3.) of 2 unequal, elliptical, awnless *paleæ*, the *outer* one convex, embracing the flattened *inner* one. *Filaments* (see fig. 3.) 3, hair-like, rather longer than the glumes. *Anthers* short, cloven at each end. *Germen* (fig. 4.) egg-shaped. *Styles* (fig. 4.) thread-shaped, about as long as the stamens. *Stigmas* short, feathery, dense. *Seed* (fig. 5.) egg-shaped, coated by the hardened polished corolla.

Distinguished from other genera, in the same class and order, by the somewhat fascicled *spikes;* the unilateral *spikelets;* the 1-flowered *calyx*, of 2 or 3 very unequal, close-pressed, awnless *glumes*, the outer one very small; by the *corolla* of 2 awnless *paleæ*, of which the *outer* one is convex, and embraces the flattened *inner* one; and by the *seed* coated by the hardened *paleæ*.

Two species British.

DIGITA'RIA SANGUINA'LIS. Bloody Finger-grass. Hairy Cock's-foot.

SPEC. CHAR. Leaves and sheaths hairy. Florets oblong, smooth, their margins rough.

Scop. Fl. Carn. v. i. p. 52.—Sm. Engl. Fl. v. i. p. 96.—Gray's Nat. Arr. v. ii. p. 155.—Lindl. Syn. p. 299.—Hook. Brit. Fl. p. 56.—Winch's Fl. of Northumb. and Durh. p. 5.—Dick. Fl. Abred. p. 25.—Irv. Lond. Fl. p. 223.—*Panicum sanguinale*, Engl. Bot. t. 849.—Curt. Fl. Lond. t. 242.—Knapp's Gram. Brit. t. 12.—Schreb. Besch. der Gräser, v. i. p. 119. t. 16.—Mart. Fl. Rust. t. 78.—Graves' Brit. Grass. t. 13.—Linn. Sp. Pl. p. 84.—Huds. Fl. Angl. (2nd edit.) p. 25.—Willd. Sp. Pl. v. i. pt. 1. p. 342.—Leers' Fl. Herb. p. 14. t. 2. f. 6.—Sm. Fl. Brit. v. i. p. 66.—With. (7th edit.) v. ii. p. 144.—Macr. Man. Brit. Bot. p. 261.—Hook. Fl. Sot. p. 21.—*Syntherisma vulgare*, Schred. Fl. Germ. v. i. p. 161.—*Gramen Dactylon latiore folio*, Ray's Syn. p 399.—*Ischæmon vulgare*, Johnson's Gerarde, p. 27.

Fig. 1. Two of the Spikelets, with their cloven stalk, attached to the rachis.—Fig. 2. The Glumes of the Calyx.—Fig. 3. The Corolla, Stamens, and Pistils.—Fig. 4. Germen and Pistils.—Fig. 5. A Seed.—*All*, more or less, *magnified*.

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* From *digitus, a finger.* † See folio 56, note †.

Localities.—In sandy cultivated fields; very rare.—*Durham*: On Sunderland Ballast-hills: W. Wetherell's Herbarium.—*Norfolk*; In pastures at Great Witchingham, seven miles from Norwich, towards Lynn: T. Willisell, in *Ray's Syn.* Found in the same place since, by Mr. Woodward. In sandy fields between Brandon and Moundeford: Rev. J. Lightfoot.—*Suffolk*; Plentifully in the ploughed fields about Elden: T. Willisell, in *Ray's Syn.* 1690. In fields opposite the Ferry at Woodbridge, not far from the river, sometimes in great plenty: Rev. G. Crabbe. At Henham: *Smith's Engl. Fl.*—*Surrey*; About Battersea; and about Martha's Chapel, near Guildford: Hudson. In Battersea Fields: Mr. J. Macnab, in N. B. G. Weybridge: W. Borrer, Esq. *ibid.*

Annual.—Flowers in July and August.

Root fibrous. *Culms* several from one root, bent and decumbent at the base, then ascending, from nine inches to about a foot high, sometimes branched, leafy, striated, smooth, generally furnished with four joints. *Leaves* broad, pointed, striated, often wavy at the edges, and slightly hairy on both sides; their sheaths striated, and very hairy, the hairs springing from minute elevated warts. *Spikes* from 3 to 8, and each from 2 to 4 inches long, slender, all proceeding from nearly the same point at the top of the culm, and spreading out like fingers. *Spikelets* numerous, all growing on one side of the *rachis* or *common stalk* of the spike, in pairs, on short unequally cloven, upright, *partial stalks* (see fig. 1.); elliptic-oblong, sometimes dark purplish, sometimes green. *Calyx* of 3 unequal glumes; the outer a very minute scale, scarcely perceptible by the naked eye, the one opposite to it twice its size, and downy on its margin; the innermost one thrice the size of the second, rigid, ribbed, and rough or downy on its margin. *Stigmas*, and often *Anthers*, violet coloured.

Mr. Borrer thinks it probable that most of the stations given to this plant above, except that of Battersea, belong to the other British species, *Digitaria humifusa*, Engl. Bot. Suppl. t. 2613; which species is distinguished from *D. sanguinalis* by its smooth leaves and sheaths, and its egg-shaped, not oblong, spikelets. My much respected friend, Mr. William Pamplin, jun. of Lavender Hill, Wandsworth, has kindly furnished me with specimens of *Digitaria humifusa*, gathered by him in a sand-pit at Weybridge, in Surrey, in 1832, (where, he informs me, it was most abundant,) a station where it had long been known to exist by Mr. Borrer.

Digitaria sanguinalis is an elegant and pretty grass when in flower, but it possesses no properties likely to benefit the Agriculturist. It has acquired the name of *sanguinalis*, from an idle trick practised by boys in Germany, of tickling their nostrils with the spikelets of this grass, until they draw blood.

"——— God made flowers to beautify
The earth, and cheer man's careful mood;
And he is happiest, who hath power
To gather wisdom from a flower,
And wake his heart in every hour
To pleasant gratitude."

Athenæum.



Arctium Lappa Common Burdock ♂.

J.Russell Del. Pub.d by W. Baxter, Botanic Garden, Oxford. 1839. W.Willis, Sc.

A'RCTIUM *.

Linn. Class & Order. SYNGENE'SIA †, POLYGA'MIA, ÆQUALIS ‡.

Natural Order. COMPO'SITÆ §, tribe, CYNAROCEPHALÆ, *Juss.* —Lindl. Syn. pp. 140 & 152; Introd. to Nat. Syst. of Bot. pp. 197 and 200.—Mack. Fl. Hibern. pp. 142 & 154.—Hook. Brit. Fl. (4th edit.) p. 410.—COMPO'SITÆ; subord. CARDUA'CEÆ; Loud. Hort. Brit. pp. 520 & 521.—SYNANTHE'REÆ; tribe, CYNAROCEPHALÆ; Rich. by Macgilliv. pp. 454 & 455.—CINAROCEPHALÆ, sect. 1. Juss. Gen. Pl. pp. 171 & 172.—Sm. Gram. of Bot. p. 121.; Engl. Fl. v. iii. p. 334.—SYRINGALES; type, CYNARACEÆ; Burn. Outl. of Bot. pp. 900 & 931.—COMPO'SITÆ, *Linn.*

GEN. CHAR. *Involucrum (common calyx)* (see figs. 1 & 5.) globose, imbricated, of numerous, spear-shaped, tapering scales, each with an incurved hook at the extremity (see fig. 6.), permanent. *Corolla* compound, uniform; *florets* (fig. 2.) numerous, all perfect, equal, tubular; the tube very long and slender; limb wider, egg-shaped, in 5 strap-shaped, regular, spreading segments. *Filaments* (see fig. 3.) 5, from the tube, hair-like, short. *Anthers* in a cylindrical, 5-toothed tube, as long as the florets. *Germen* oblong, downy at the summit. *Style* (see fig. 2.) thread-shaped, longer than the stamens. *Stigmas* 2, reflexed. *Seed-vessel* none, except the permanent closed calyx, falling off entire. *Seed* (fig. 4.) 1 to each floret, inversely pyramidal, with 4 unequal blunt angles, abrupt. *Pappus* (see fig. 4.) a tuft of simple rough bristles, shorter than the seed. *Receptacle* (see figs. 1 & 5.) flat, covered with narrow, strap-shaped, chaffy scales, nearly as long as the calyx.

The globose *involucrum* of numerous scales, with an incurved hook at their extremity; the chaffy *receptacle;* and the short, simple *pappus;* will distinguish this from other genera, with a capitate *corolla* formed of all tubular *florets*, in the same class and order.

Two species British.

A'RCTIUM LAPPA. Common Burdock. Clot-burr. Great-burr. Hurr-burr.

SPEC. CHAR. Leaves stalked, heart-shaped, wavy, without prickles. Involucrum when in seed nearly smooth.

Engl. Bot. t. 1228.—Curt. Fl. Lond. t. 238.—Woodv. Med. Bot. v. i. p. 41. t. 15.—Linn. Sp. Pl. p. 1143. excl. var. β.—Huds. Fl. Angl. (2nd edit.) p. 348, in part.—Willd. Sp. Pl. v. iii. pt. III. p. 1631.—Sm. Fl. Brit. v. ii. p. 844; Engl. Fl. v. iii. p. 380.—With. (7th ed.) v. iii. p. 905.—Hook. Brit. Fl. p. 349, excl. var. β.—Light. Fl. Scot. v. i. p. 445.—Sibth. Fl. Oxon. p. 243.—Abbot's Fl. Bed. p. 174.—Thornton's Fam. Herb. p. 678, with a figure. — Davies' Welsh Bot. p. 75.—Purton's Midl. Fl. v. ii. p. 377. — Relhan's Fl. Cant. (3rd edit.) p. 327. — Hook. Fl. Scot. p. 235, excl. var. β.—Grev. Fl. Edin. p. 171.—Fl. Devon. pp.

Fig. 1. Vertical section of the Involucrum and Receptacle, in an early state.—Fig. 2. A Floret.—Fig. 3. Stamens, *magnified.*—Fig. 4. A Seed.—Fig. 5. Vertical section of the Involucrum, and Receptacle, in a more advanced state than Fig. 1.—Fig. 6. Two Scales of the Involucrum.

* From *arktos*, Gr. a *bear;* from the coarse texture of the involucrum.

† See folio 91, n. †. ‡ See folio 147, n. ‡. § See folio 27, *a*.

132 & 156, excl. var. β.—Johnston's Fl. of Berw. v. i. p. 177.—Winch's Fl. of Northumb. and Durh. p. 52, excl. var. β.—Walker's Fl. of Oxf. p. 228.—Bab. Fl. Bath. p. 27.—Dick. Fl. Abred. p. 50.—Irv. Lond. Fl. p. 147.—Luxf. Reig. Fl. p. 69. α.—Cow. Fl. Guide, p. 22.—Mack. Catal. Pl. of Irel. p. 71.; Fl. Hib. p. 156, excl. var. β.—*Arctium major*, Gray's Nat. Arr. v. ii. p. 435.—*Lappa glabra*, Lind. Syn. p. 154.—Macr. Man. Brit. Bot. p. 139.—*Lappa major Arcium Dioscoridis*, Ray's Syn. p. 197.—*Bardana major*, Johnson's Gerarde, p. 809.

LOCALITIES.—In waste places, and by road-sides; common.

Biennial.—Flowers in July and August.

Root tapering, fleshy, blackish on the outside, whitish within, penetrating deeply into the earth, and sending off many slender fibres. *Stem* upright, 3 feet or more high, solid, round, furrowed, leafy, much branched. *Leaves* very large, on footstalks, alternate, heart-shaped, blunt, veiny; whitish and hoary underneath, 3-ribbed at the base, and somewhat waved and notched at the margin. *Flowers* small, purple. *Involucrum* globular, nearly smooth, each of the scales ending in a fine hooked spine, which takes firm hold of the coats of animals, a person's dress, &c. *Florets* funnel-shaped, with a long thread-shaped tube. *Anthers* purple or violet-coloured, projecting beyond the florets. *Style* white, with expanding stigmas. *Seeds* oblong, angular, rather flattened, their surface somewhat reticulated. The *leaves* are larger than those of any other British plant, except the *Butter-bur* (see folio 139).

The Burdock is capable of being applied to many uses; the roots and stalks are esculent and nutritive: the stalks, for this purpose, should be cut before the plant flowers, the rind peeled off, and then boiled and served up in the manner of *asparagus*, or eaten raw as a salad, with oil and vinegar. A decoction of the roots is esteemed by some very skilful physicians equal, if not superior, to that of sarsaparilla, in rheumatic affections. It has also been given in dropsical cases with success, where other powerful medicines had been ineffectually used. The decoction should be made by boiling two ounces of the fresh root in three pints of water to two, which, when intended for dropsical cases, should be taken in the course of two days, or if possible in twenty-four hours. The seeds are also recommended as very efficacious in the same complaint, given either in the form of emulsion, or in powder, to the quantity of a drachm.

According to the observations of LINNÆUS, cows and goats eat this plant; sheep and horses refuse it; and swine are not fond of it. *Phalæna Humuli* feeds upon the roots, and the *Mottled Orange Moth* upon the stems, within which the chrysalis may be found about the month of August, especially in stunted specimens.

Boys catch bats, by throwing the prickly heads into the air. The hooked points of the scales of the heads tend to the dispersion of the seeds, by adhering to the coats of animals, &c.; a circumstance from which the word *Lappa* is supposed to be derived. See WOODVILLE, WITHERING, &c.

A very minute fungus, *Erysiphe Arctii*, Grev. Fl. Edin. p. 460, is not uncommon on the under side of the leaves of this plant and *A. Bardana*, about Oxford, in the Autumn.



Rubus fruticosus Common Blackberry ♄

C. Wathern del &c. Publ^d by W. J. axter Botanic Garden Oxford 1839

RU'BUS *.

Linnean Class and Order. ICOSA'NDRIA †, POLYGY'NIA.

Natural Order. ROSA'CEÆ ‡, Juss. Gen. Pl. p. 334.—Sm. Gram. of Bot. p. 171.—Lindl. Syn. p. 88.; Introd. to Nat. Syst. of Bot. p. 81.—Rich. by Macgilliv. p. 528.—Loud. Hort. Brit. p. 512.; Arbor, et Frutic. Brit. v. ii. p. 670.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 523.—Mack. Fl. Hiber. p. 85.—Hook. Brit. Fl. (4th ed.) p. 404.—ROSALES; sect. ROSINÆ; subsect. ROSIANÆ; type, ROSACEÆ; subtype, FRAGARIDÆ; Burn. Outl. of Bot. v. ii. pp. 614, 683, 699, & 700.—SENTICOSÆ, *Linn.*

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 1 sepal, in 5 deep, simple, somewhat egg-shaped, concave, pointed, permanent segments, either spreading, or converging. *Corolla* (see fig. 2.) of 5, inversely egg-shaped, spreading or nearly upright, often crisped, or folded petals, about the length of the calyx or shorter, attached by their claws to its rim, alternate with its segments, deciduous. *Filaments* (see fig. 3.) numerous, hair-like, upright, shorter than the petals, and situated on the rim of the calyx within the corolla (see fig. 2). *Anthers* roundish, flattened, of 2 lobes. *Germens* (see figs. 3 & 5.) numerous, globular, crowded closely together in a round head. *Style* one to each germen, lateral, short, ascending, permanent, elongated after flowering. *Stigmas* blunt, (see fig. 6.) permanent. *Fruit* (fig. 7.) superior, consisting of numerous, single-seeded, juicy *drupes (drupeolæ)*, placed upon an elevated, dry, spongy *receptacle*. *Seed* inverted.

The 5-cleft *calyx*, flattish at the bottom; and the superior *fruit*, of several single-seeded juicy *drupes*, placed upon an elevated spongy receptacle; will distinguish this from other genera, in the same class and order.

Thirteen species British. (*Hook. Brit. Fl.*)

RU'BUS FRUTICO'SUS. Shrubby Bramble. Common Blackberry. Bumblekites. Scaldberries.

SPEC. CHAR. Stem upright, afterwards decurved, angular, furrowed, mostly rather hairy. Prickles recurved. Leaves digitate, of 3 or 5, stalked, somewhat inversely egg-shaped, pointed, shining, coriaceous leaflets, white underneath. Panicles long, narrow, downy.

Engl. Bot. t. 715.—Weihe and Nees Rub. Germ. t. 20, *fide Hooker.*—Linn. Sp. Pl. p. 707.—Huds. Fl. Angl. (2nd ed.) p. 220.—Willd. Sp. Pl. v. ii. pt. ii. p. 1084.—Sm. Fl. Brit. v. ii. p. 543; Engl. Fl. v. ii. p. 399.—With. (7th ed.) p. 627.—Gray's Nat. Arr. v. ii. p. 586.—Lindl. Syn. (2nd ed.) p. 95.—Hook. Brit. Fl. p. 246.—Macr. Man. Brit. Bot. p. 67.—Lightf. Fl. Scot. v. i. p. 264.—Sibth. Fl. Oxon. p. 160.—Abbot's Fl. Bedf. p. 112.—Purt. Midl. Fl. v. i. p. 243.—Davies'

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. Vertical section of Calyx, Receptacle, &c., showing the situation of the Stamens.—Fig. 4. A single Stamen.—Fig. 5. Calyx and Pistils,—Fig. 6. A single Pistil.—Fig. 7. A Fruit.—Fig. 8. A portion of the Stem.—Figs. 4 & 5, *magnified.*

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* Name of uncertain origin; perhaps from the Latin *ruber*, or the Celtic, *rub; red.* HOOKER.

† See folio 100, note †. ‡ See folio 313, *a*.

Welsh Bot. p. 51.—Relh. Fl. Cant. (3rd ed.) p. 203.—Hook. Fl. Scot. p. 160.—Grev. Fl. Edin. p. 115.—Fl. Devon. pp. 87 & 172.—Johnston's Fl. Berw. v. i. p. 114.—Winch's Fl. of Northumb. and Durh. p. 34.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 534.—Loud. Arb. et Frutic. Brit. p. 742.—Walker's Fl. of Oxf. p. 142.—Bab. Fl. Bath. p. 15.—Dick. Fl. Abred. p. 40.—Luxf. Reig. Fl. p. 44.—Cow. Fl. Guide, p. 45.—Mack. Catal. Pl. of Irel. p. 49.; Fl. Hibern. p. 83.—*Rubus abruptus*, Lindl. Syn. (1st ed.) p. 92.—*R. discolor*, ibid. p. 93.—*Rubus major, fructo nigro*, Ray's Syn. p. 467.

Localities.—In hedges, thickets, and woods; common.

Shrub.—Flowers in July and August.

Stems shrubby, many feet long, tough and woody, biennial, if not perennial, in general strongly angular, with intermediate furrows; pale green, often glaucous, and mostly hairy when young; when older, deep purple, with a grey or bluish tinge from the appressed persistent remains of the pubescence. *Prickles* numerous, strong, straightish, or recurved, on the angles only of the stem and branches, and on the petioles, and occasionally on the panicle. *Leaves* digitate; *leaflets* mostly 5, but occasionally only 3, especially on the flowering branches, firm and durable, almost evergreen, varying in size and shape, being sometimes almost round with an abrupt point, but mostly inversely egg-shaped, or somewhat wedge-shaped, with the edges and point remarkably curved downwards; all on considerable partial stalks, that of the terminal one much the longest, the lateral pairs often but imperfectly divided; upper side even, dark green, mostly but not always naked; under side, excepting on the lower leaves of the flowering branches, usually quite white. *Stipulas* bristle-shaped, hairy, in pairs upon each petiole near the base. *Panicle* upright, long, narrow, and downy, without glandular hairs. *Bracteas* solitary, strap-spear-shaped, white and hoary. *Flowers* upright and handsome. *Calyx* woolly all over, destitute of prickles and of glandular hairs; its segments short, rarely acuminate, reflexed in the flower as well as in fruit. *Petals* of a delicate pink, rarely if ever white. *Stamens* red. *Fruit* nearly globular, black, (sometimes, it is said, white,) composed of many rather small, closely packed, somewhat depressed, single-seeded, juicy *drupes* or *grains*, of a sweet but mawkish flavour, ripening late in Autumn.

This species is considered as being more common in English hedges than any of the other brambles, and also as attaining a greater size. The fruit is said to be astringent; but it has been eaten by children, in every country where the plant grows wild, since the time of Pliny. It has also been used, both in France and England, to produce a subacid drink; an inferior description of wine; and, by fermentation and distillation, a strong spirit. It is also used for making a rob, or jam, which is considered good for sore throats. The green twigs will dye wool and silk black. Silk-worms will sometimes feed upon the leaves in defect of those of the mulberry. The long tough shoots are used by thatchers, straw-hive, and mat-makers, to bind their other materials together; "and in times of better feeling, when the disgusting traffic of the body-snatcher was an unheard-of enormity, they were considered a sufficient security for binding the sod over rustic graves; from which even to have gathered a flower, planted by the hand of affection, would have been deemed a profanation." (Withering). See *Sm. Engl. Fl.*; *Hook. Brit. Fl.*; & *Loud. Arb. et Fr. Brit.*

A curious little fungus, *Aregma bulbosum*, Hook. Brit. Fl. v. ii. pt. ii. p. 358; *Puccinia Rubi*, Baxt. St. Crypt. Oxon. n. 33.; is parasitical on the under side of the leaves of this species of Bramble about Oxford, in small black clusters.



Matricaria Chamomilla. Wild Chamomile. ☉

C. Sather, del. & sc. Pub.d by W. Baxter, Botanic Garden, Oxford 1839.

MATRICA'RIA *.

Linnean Class and Order. SYGENE'SIA†, POLYGA'MIA, SUPE'RFLUA‡.

Natural Order. COMPO'SITÆ§, tribe, CORYMBI'FERÆ‖, *Juss.*—Lindl. Syn. pp. 140 & 142.; Introd. to Nat. Syst. of Bot. pp. 197 and 199.—Mack. Fl. Hibern. p. 142.—Hook. Brit. Fl. (4th edit.) p. 410.—COMPO'SITÆ; subord. ANTHEMI'DEÆ, Loud. Hort. Brit. pp. 520 & 522.—SYNANTHE'REÆ; tribe, CORYMBI'FERÆ, Rich. by Macgilliv. pp. 454 & 455.—CORYMBIFERÆ, sect. 5. Juss. Gen. Pl. pp. 177 & 185.—Sm. Gram. of Bot. pp. 121 & 124.; Engl. Fl. v. iii. p. 334.—SYRINGALES; subord. ASTEROSÆ; sect. ASTERINÆ; subsect. ASTERIANÆ; type, ASTERACEÆ; Burn. Outl. of Bot. pp. 900, 901, 920, 924, & 926.—COMPO'SITÆ, *Linn.*

GEN. CHAR. *Involucrum (common calyx)* (fig. 1.) slightly convex, closely imbricated, with several oblong, nearly equal, membranous-edged scales. *Corolla* (fig. 2.) compound, radiant; *florets* of the conical disk (see fig. 3.) numerous, perfect, tubular (see fig. 4.), with 5 equal spreading segments; *florets* of the ray numerous, strap-shaped, spreading or reflexed, blunt, with 3 terminal teeth (see fig. 5). *Filaments* (see fig. 6.) 5, in the tubular florets only, hair-like, very short. *Anthers* (see fig. 6.) in a cylindrical tube. *Germen* (see figs. 5, 6, & 7.) in all the florets inversely egg-shaped, angular. *Style* (see figs. 6 & 7.) thread-shaped, not prominent. *Stigmas* (see figs. 4--7.) spreading, blunt. *Seed-vessel* none, but the unchanged expanding calyx. *Seed* (figs. 8 & 9.) in all the florets inversely egg-shaped, angular, without any border or crown. *Receptacle* (see fig. 10.) naked, almost perfectly cylindrical, hollow.

The nearly flat *involucrum*, with closely imbricated, nearly equal, membranous-edged scales; the numerous, strap-shaped *florets* of the ray; the nearly cylindrical, naked *receptacle;* and the *seeds* without either pappus or border; will distinguish this from other genera in the same class and order.

It differs from *Anthemis* (t. 328.) in the receptacle being naked, not chaffy.

One species British.

MATRICA'RIA CHAMOMI'LLA. Wild Chamomile. Bitter Chamomile. Corn Fever-few.

SPEC. CHAR. Leaves smooth, twice-pinnatifid, the segments very narrow, strap-shaped. Involucrum nearly flat, its scales bluntish.

Engl. Bot. t. 1232.—Curt. Fl. Lond. t. 331.—Mart. Fl. Rust. t. 74.—Linn. Sp. Pl. p. 1256.—Huds. Fl. Angl. (2nd ed.) p. 372.—Willd. Sp. Pl. v. iii. pt. iii. p. 2161.—Sm. Fl. Brit. v. ii. p. 902.; Engl. Fl. v. iii. p. 454.—With. (7th edit.)

Fig. 1. Involucrum.—Fig 2. Corolla.—Fig. 3. A Flower with some of the florets taken off to show the cylindrical receptacle.—Fig. 4. A Floret of the Disk.—Fig 5. A Floret of the Ray.—Fig. 6. Stamens and Pistil.—Fig. 7. Germen, Style, and Stigma.—Figs. 8 & 9. Seed.—Fig. 10. Involucrum and Receptacle.—Fig. 11. A Flower of the variety with very short florets of the ray.—Figs. 4, 5, 6, 7, & 9, *magnified*.

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* From its reputed medical virtues.
† See folio 91, note †.
‡ See fol. 36, n. ‡.
§ See fol. 27, *a*.
‖ See fol. 36, *a*.

v. iii. p. 952.—Lindl. Syn. p. 194.—Hook. Brit. Fl. p. 366.—Macr Man. Brit. Bot. p. 130.—Lightf. Fl. Scot. v. i. p. 491.—Sibth. Fl. Oxon. p. 258.—Abbot's Fl. Bedf. p. 185.—Davies' Welsh Bot. p. 80.—Purt. Midl. Fl. v. ii. p. 401.—Relh. Fl. Cant. (3rd edit.) p. 350.—Hook. Fl. Scot. p. 246.—Grev. Fl. Edin. p. 181.—Fl. Devon. pp. 140 & 161.—Winch's Fl. of Northumb. and Durh. p. 55.—Walker's Fl. of Oxf. p. 246.—Irv. Lond. Fl. p. 154.—Luxf. Reig. Fl. p. 91.—Mack. Catal. Pl. Irel. p. 74.; Fl. Hibern. p. 150.—*Chamomilla vulgaris*, Trag. Hist. p. 148.—Gray's Nat. Arr. v. ii. p. 454.—*Chamæmelum*, Ray's Syn. p. 184.—Johnson's Gerarde, p. 754.

Localities.—In corn-fields, waste ground, on dunghills, and by road-sides; not uncommon.

Annual.—Flowers from May to August.

Root rather large and woody, fibrous. *Stem* upright, from 12 to 18 inches high, much branched, solid, somewhat angular, striated, smooth, leafy. *Leaves* alternate, sessile, clasping the stem, smooth, deep green, the upper ones simply, the rest doubly pinnatifid (wing-cleft), the segments strap-shaped, very narrow, and minutely pointed. *Flowers* numerous, terminal, solitary, on striated, naked peduncles. *Scales of the Involucrum* somewhat dilated outwards, rounded, and bluntish. *Florets of the Ray* white, reflexed at night, elliptic-oblong, with 3 teeth. *Disk* conical, very prominent, of numerous yellow *florets*. *Receptacle* oblong, nearly cylindrical, naked, dotted. *Seeds* angular, oblique, of a pale brown colour, quite destitute of any crown or border.

I found a variety of this species in Cowley fields near Oxford, on July 12, 1838, in which the florets of the ray were very short, and rather fewer in number than in the common one. A single flower of this variety is represented at fig. 11, of the accompanying plate.

Matricaria Chamomilla is said to possess the same properties as the officinal Chamomile *(Anthemis nobilis)*, but in an inferior degree. The Finlanders use an infusion of it in consumptive cases.—According to the observations of Linnæus, cows, goats, and sheep eat it; horses and swine refuse it. The larvæ of *Cassida viridis* are nourished by it.

A blue essential oil is obtained, by distillation, from the flowers, which is supposed to contain all their virtues.

SUMMER.

——————— Who loves not Summer?
It is the tide of joy!—The Sun, then, throws
Out from his blue pavilion in the sky
His richest rays, to feed the gladsome Earth.
The summer-time is Nature's festival,
When Earth and all its denizens rejoice;
The winds are soft, and warm with sunshine; airs,
Cozening the lilies of their ripe perfume,
Bear, on their essenced wings, marauding bees
In many a swarm, an amorous foray bent
Against the honeyed flowerage! Gentle doves
Coo in the woods, or through the welkin winnow,
Catching the sunlight on their painted pinions:—
And streams—each like a beauteous cup-bearer—
Pour forth extatic draughts to quench the thirst
Of the proud antler'd deer, and timid hare.
The land is bright with flowers, that gladly lift
Their fair heads to the day—All except one—
The modest harebell, in its pensive grace,
Whose bells, intoxicated with the dew,
Droop down abashed, ashamed to greet the Sun!

R. Calder Campbell.



Sinapis nigra. *Black Mustard.* ☉

Mathews Del. & Sc.

Pub.d by W. Baxter Botanic Garden Oxford 1839

SINA'PIS *.

Linnean Class and Order. TETRADYNA'MIA †, SILIQUOSA ‡.

Natural Order. CRUCI'FERÆ §, Juss. Gen. Pl. p. 237.—Sm. Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv. p. 498.—CRUCIFERÆ; subord. ORTHOPLO'CEÆ; tribe, BRASSICEÆ; Lindl. Syn. pp. 20 & 32.; Introd to Nat. Syst. of Bot. pp. 14 to 18.—Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist. v. i. pp. 143 & 240.—Don's Gen. Syst. of Gard. and Bot. v. i. pp. 146 and 150.—Mack. Fl. Hibern. pp. 16 & 27.—Hook. Brit. Fl. (4th ed.) pp. 397 & 398.—ROSALES; subord. RHŒADOSÆ; sect. RHÆADINÆ; type, BRASSICACEÆ; subtype, RAPHANIDÆ; Burn. Outl. of Bot. v. ii. pp. 614, 784, 847, 853, & 860.—SILIQUOSÆ, *Linn.*

GEN. CHAR. *Calyx* (figs. 1 & 2.) inferior, equal, and nearly flat at the base; of 4, oblong, straight, spreading, deciduous sepals. *Corolla* (see fig. 2.) cruciform, of 4, inversely egg-shaped, rounded, entire, or slightly notched, spreading petals, with strap-shaped, upright claws. *Filaments* (see fig. 4.) 6, awl-shaped, simple, upright. *Anthers* oblong, slightly spreading. *Glands* (see fig. 4.) 4; 2 at the inside of the shorter filaments, 2 at the outside of the longer. *Germen* (see figs. 4 & 5.) cylindrical, tapering into a short *style*. *Stigma* capitate, rather small. *Pod* (see figs. 6 & 7.) nearly cylindrical, or somewhat 4-angled, variously beaked, of 2 concave, undulated valves, and 2 longitudinal cells, besides 1 for the most part in the beak, generally barren. *Seeds* in a single row, nearly globular (see figs. 8 & 9), with 1 occasionally in the beak. *Cotyledons* conduplicate, their double edges meeting the radicle (o>>).

The spreading *calyx;* the nearly cylindrical, somewhat beaked *pod*, of 2 valves; and the conduplicate *cotyledons;* will distinguish this from other genera in the same class and order.

Five species British.

SINA'PIS NI'GRA. Black Mustard. Common Mustard.

SPEC. CHAR. Pods somewhat 4-angled, smooth, even, slightly beaked, close-pressed to the stalk. Lower leaves lyrate; upper strap-spear-shaped, quite entire, stalked, smooth.

Engl. Bot. t. 969.—Woodv. Med. Bot. v. iii. p. 409. t. 151.—Mart. Fl. Rust. t. 51.—Linn. Sp. Pl. p. 933.—Huds. Fl. Angl. (2nd ed.) p. 297.—Sm. Fl. Brit. v. ii. p. 722.; Engl. Fl. v. iii. p. 222.—With. (7th edit.) v. iii p. 786.—Gray's Nat. Arr. v. ii. p. 686.—Lindl. Syn. p. 33.—Hook. Brit. Fl. p. 309.—Macr. Man. Brit. Bot. p. 22.—Lightf. Fl. Scot. v. i. p. 361.—Sibth. Fl. Oxon. p. 209.—

Fig. 1. Calyx.—Fig. 2. Calyx and Corolla.—Fig. 3. A separate Petal.—Fig. 4. Stamens and Pistil.—Fig. 5. Germen, Style, and Stigma.—Fig. 6. A Pod.—Fig. 7. Ditto, with the valves separated.—Figs. 8 & 9. Seed.—Fig. 10. The Septum, or Partition.—*All*, except figures 6. 7, 8, and 10, *more or less magnified.*

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* From the Greek *sinapi*, which again THEIS derives from the Celtic *nap*, *a turnip*, or *cabbage*. HOOKER.

† See fol. 38, note †. ‡ See fol. 62, note ‡. § See fol. 38, *a*.

‖ From *orthos*, Gr. *upright;* and *ploce*, Gr. *a folding together;* the cotyledons being incumbent, and folded together or plaited lengthwise through their middle, and enwrapping the radical in the recess, thus, o>>.

Abbot's Fl. Bodf. p. 116.—Thornt. Fam. Herb. p. 614, with a figure.—Davies' Welsh Bot. p. 65.—Purt. Midl. Fl. v. i. p. 310.—Relh. Fl. Cant. (3rd edit.) p. 273.—Hook. Fl. Scot. p. 204.—Fl. Devon. pp. 114 & 190.—Johnst. Fl. Berw. v. i. p. 147.—Winch's Fl. of Northumb. and Durh. p. 45.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 248.—Loud. Encycl. Gard. (new edit. 1835) p. 863. paragr. 4434.—Walker's Fl. of Oxf. p. 196.—Perry's Pl. Varvic. Selectæ, p. 57.—Bab. Fl. Bath. p. 5.—Irv. Lond. Fl. p. 165.—Luxf. Reig. Fl. p. 59.—Mack. Catal. Pl. Irel. p. 63.; Fl. Hibern. p. 29.—*Sinapi sativum secundum*, Ray's Syn. p. 295.—Johnson's Gerarde, pp. 243 & 244, description only.

Localities.—In fields, waste ground, and on banks by road-sides; frequent.

Annual.—Flowers in June and July.

Root small, tapering, fibrous. *Stem* upright, 3 or 4 feet high, round, somewhat striated, the upper part smooth, with many distant, spreading branches. *Leaves* petioled, variously lobed and toothed; those near the root large, lyrate, and rough; those higher up the stem smooth, frequently simple, spear-shaped, and toothed; the uppermost strap-spear-shaped, quite entire, spreading or pendulous. *Flowers* numerous, in somewhat corymbose racemes, or spikes, smaller than in either *Sinapis arvensis*, or *S. alba*. *Calyx* yellowish, widely spreading, but not quite horizontal. *Corolla* pale yellow; petals inversely egg-shaped. *Pod* small, close-pressed to the stem, bluntly 4-angled, nearly even, and smooth, tipped with the permanent, 4-angled, somewhat elongated, *style*, and capitate *stigma;* but wanting the proper, often seed-bearing, beak of this genus, though the style finally becomes tumid at the base. *Seeds* several, small, globose, brown.

This is easily distinguished from the other species of *Sinapis* by the upper leaves being pendulous, and by the pods being closely pressed to the stem.

The seeds of this plant, when reduced to powder, make the common mustard so much in request at our tables. It is much cultivated in Essex, and the seed sold to the manufacturers of flour of mustard. It is prepared by drying the seed on a kiln, and grinding them into powder. The black husks of the seeds are separated by very delicate machinery. The French either do not attempt or do not succeed in separating the husks, as their mustard when brought to table is always black. It is, however, more pungent than ours, because the quality resides chiefly in the husk. The constituents of mustard appear to be chiefly starch, mucous, a bland fixed oil, an acrid volatile oil, and an ammoniacal salt. The seeds taken inwardly, in the quantity of a table spoonful or more, gently relax the bowels, and are of service in asthma, chronic rheumatism, and palsy. The bruised seed, or its flour, mixed with water, proves a speedy and safe emetic, and is often used as such in paralytic cases. Cataplasms, formed with powdered mustard-seed, crumb of bread, and vinegar, (hence called sinapisms,) are commonly applied to the soles of the feet, as stimulants, in fevers that require such treatment. The tender leaves are sometimes boiled and eaten as greens in the Spring.

Phalæna fuliginosa lives upon the different species; and the caterpiller of *Pontia Daplidice* devours the seed.



Alisma Plantago. Water Plantain.

Engraved by W. Clark, from a Botanical Garden drawing, 1830.

ALI'SMA*.

Linnean Class and Order. HEXA'NDRIA,† POLYGY'NIA.

Natural Order. ALISMA'CEÆ‡, *Dr. R. Brown.*—Lindl. Syn. p. 253.; Introd. to Nat. Syst. of Bot. p. 253.—Rich. by Macgilliv. p. 399.—Loud. Hort. Brit. p. 536.—Mack. Fl. Hibern. p. 271.—Hook. Brit. Fl. (4th edit.) p. 421.—LILIALES; sect. ALISMINÆ; type, ALISMACEÆ; Burn. Outl. of Bot. v. i. pp. 418, 422, & 423.—JUNCI, sect. 3. Juss. Gen. Pl. pp. 43 & 46.—Sm. Gram. of Bot. p. 72.—TRIPETALOIDEÆ, *Linn.*

GEN. CHAR. *Calyx* (see figs. 1 & 2.) inferior, of 3 egg-shaped, concave, permanent sepals. *Corolla* (see fig. 2.) of 3, roundish, flat, widely spreading, deciduous petals, much larger than the sepals, and alternate with them. *Filaments* (fig. 3.) 6, awl-shaped, shorter than the corolla. *Anthers* roundish. *Germens* (see figs. 1 & 4.) superior, more than 5, ranged variously, tumid or compressed. *Styles* (see fig. 4.) simple, slender, oblique. *Stigmas* blunt. *Capsules* (fig. 5.) as many as the germens, clustered, distinct, indehiscent, 1-seeded. *Seeds* with a much incurved *embryo* (fig. 7).

Distinguished from other genera, in the same class and order, by the *calyx* of 3 sepals; the *corolla* of 3 petals; the many, clustered, distinct, indehiscent, 1-seeded *capsules;* and the much incurved *embryo.*

Three species British.

ALI'SMA PLANTA'GO. Great Water-Plantain. Broad Water-Plantain. Greater Thrum-wort.

SPEC. CHAR. Leaves egg-shaped, acute. Fruit depressed. Capsules bluntly triangular.

Engl. Bot. t. 837.—Curt. Fl. Lond. t. 318.—Linn. Sp. Pl. p. 486.—Huds Fl. Angl. (2nd ed.) p. 158.—Willd. Sp. Pl. v. ii. pt. 1. p. 276.—Sm. Fl. Brit. v. i. p. 400.; Engl. Fl. v. ii. p. 203.—Lindl. Syn. p. 253.—Hook. Brit. Fl. p. 172.—Macr. Man. Brit. Bot. p. 222.—Lightf. Fl. Scot. v. i. p. 193.—Sibth. Fl. Oxon. p. 120.—Abbot's Fl. Bedf. p. 83.—Davies' Welsh Bot. p. 36.—Purt. Midl. Fl. v. i. p. 188.—Relh. Fl. Cantab. (3rd edit.) p. 152.—Hook. Fl. Scot. p. 114.—Grev. Fl. Edin. p. 85.—Fl. Devon. pp. 66 & 127.—Johnst. Fl. Berw. v. i. p. 84.—Winch's Fl. of Northumb. and Durham, p. 24.—Burnett's Outl. of Bot. v. i. pp. 423 and 424, with a figure.—Walker's Fl. of Oxf. p. 105.—Bab. Fl. Bath. p. 47.—Dick. Fl. Abred. p. 35.—Irv. Loud. Fl. p. 107.—Luxf. Reig. Fl. p. 32.—Cow. Fl. Guide, p. 19.—Mack. Catal. Pl. Irel. p. 35.; Fl. Hibern. p. 271.—*Alisma major,* Gray's Nat. Arr. v. ii. p. 216.—*Plantago aquatica,* Ray's Syn. p. 257.—*Plantago aquatica major,* Johnson's Gerarde, p. 417.

LOCALITIES.—In ponds, watery ditches, and margins of rivers; common.

Perennial.—Flowers in July, August, and September.

Root fibrous. *Leaves* all radical, egg-shaped, pointed, smooth, quite entire, slightly ribbed, sometimes a little waved at the margin. *Petioles (leaf-stalks)* very long, upright, semicylindrical, with 2

Fig. 1. Calyx and Pistils.—Fig. 2. Calyx and Corolla.—Fig. 3. Stamens and Pistils.—Fig. 4. Germens, Styles, and Stigmas.—Fig. 5. Capsules or Fruit.—Fig. 6. A single Capsule.—Fig. 7. Seed, *highly magnified.*

* From *alis, water,* in Celtic. The genus is altogether aquatic. HOOKER.

† See folio 33, note †. ‡ See folio 109, *a.*

sharp, and rather prominent, edges, the base dilated, and sheathing, and frequently of a purplish colour. *Scape (flower-stalk)* rising 2 or 3 feet above the water, bluntly 3-angled, naked, smooth, panicled, with numerous, whorled, compound, spreading, bracteated branches and subdivisions. *Bracteas* short, several together, spear-shaped, membranous, brownish. *Flowers* terminating each branch or subdivision of the panicle, solitary, small. *Calyx* of 3, egg-shaped, somewhat pointed, concave, spreading, striated sepals, membranous at the margins. *Corolla* of 3, roundish, flat, spreading petals, ragged at the end, of a delicate pale purple, yellow at the base. *Filaments* very slender, slightly bending inwards, fixed to the receptacle. *Fruit* (fig. 5.) somewhat 3-cornered. *Capsules* (see fig. 5.) about 18, ranged side by side in a circle. *Embryo* (see fig. 7.) curved. The flowers are said to be fully expanded about four in the afternoon. When growing in deep or running water the leaves become lengthened out more or less, and then constituting the varieties β and γ of Sir J. E. Smith's *English Flora*. In the latter, Sir James informs us, they are perfectly linear.

This is one of our most common plants in and by the sides of ponds, rivers, watery ditches, &c. It "has long enjoyed a not unquestioned reputation for its specific influence in the treatment of canine madness. Several cases have been published by Lewshin, Burdach, Moser, and others, in which it is asserted to have worked well-marked cures. Its root was administered in doses of two drachms and a half daily, and the leaves made into a poultice and applied to the wound. But notwithstanding these assurances, it is probable that the escape of the patients alluded to should be rather attributed to the well known casualty of the hydrophobic poison having been never introduced, than to the antilyssic virtues of *Alisma*. The powdered roots have been substituted for *uva ursi* with advantage in cases of irritable bladder, in doses of a drachm." The tubers of this plant, as well as those of the *sagittaria* (t. 109.), contain a good deal of amylaceous matter, and form a nutritious food. They are commonly eaten by the Kalmuc Tartars. See *Burn. Outl. of Bot.* p. 424.

It is observed by Mr. Henry Turner, of the Bury Botanic Garden, that the circulation of the Sap in Plants may be as distinctly traced in the *Alisma Plantago*, as in the *Charas*. See *Mag. Nat. Hist.* v. viii. p. 630.

"There is a spell in every flower, a sweetness in each spray,
And every simple bird has power to please me with its lay.
And there is music on the breeze that sports along the glade;
The crystal dew-drops on the trees are gems by fancy made.
O, there is joy and happiness in every thing I see,
Which bids my soul rise up and bless the God who blesses me."

Anon.



Corylus Avellana. Hazel-nut. h

I Russell Del
Pub.d by W Baxter Botanic Garden Oxford 1839.
W Wilkes Sc

CO'RYLUS*.

Linnean Class and Order. MONŒ'CIA†, POLYA'NDRIA.

Natural Order. CUPULI'FERÆ, *Richard.*—Lindl. Syn. p. 239; Introd. to Nat. Syst. of Bot. p. 97.—Rich. by Maegilliv. p. 545.—AMENTA'CEÆ, *Linn.*—Juss. Gen. Pl. p. 407.—Sm. Gram. of Bot. p. 189.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 242.—Hook. Brit. Fl. (4th ed.) p. 419.—QUERNEALES; sect. QUERCINÆ; type, CORYLACEÆ; Burn. Outl. of Bot. v. ii. pp. 523 & 531.

GEN. CHAR. *Sterile Flowers* in cylindrical imbricated catkins (fig. 1). *Scales* sessile, imbricated, much contracted at the base, in 3 deep, egg-shaped, concave segments, the middle one the largest, lying over the two lateral ones (see fig. 2). *Corolla* none. *Filaments* (see fig. 2.) 8, or more, hanging from the inner side of each scale, hair-like, rather short. *Anthers* roundish, of 1 cell, bearded at the tip. *Fertile Flowers* in a bud-like catkin, which is developed into a branchlet; bearing the flowers at its tip (see fig. 3). *Outer Calyx* (see fig. 4.) inferior, of 1 sepal, deeply divided, many-flowered, subsequently much enlarged, permanent; *inner* not obvious, formed of a slightly villous membrane, that covers the germen, to the tip, and, as that progresses to a nut, adheres to it most closely and becomes part of the shell. *Corolla* none. *Germen* (see fig. 5.) very small, egg-shaped, with rudiments of 2 seeds. *Styles* (see fig. 5.) 2, very short. *Stigmas* (see fig. 5.) prominent, awl-shaped, coloured, finely downy, deciduous. *Nut* (see fig. 6.) egg-shaped, with a broad scar, bony, not bursting, a little compressed and downy at the top, scarcely pointed, invested with the greatly enlarged, tubular, coriaceous, jagged, downy outer-calyx or involucrum; by abortion, 1-seeded. *Seed* (see fig. 6, *b.*) adhering to the remains of the dissepiment. *Cotyledons* large, without separate albumen; *embryo* oblong, at the top of the seed.

The *sterile flowers* in a cylindrical catkin, each of a 3-lobed scale, with 8 or more stamens, destitute of a corolla; the *fertile flowers* in a bud-like catkin, each flower with 2 stigmas; and the *nut* inclosed in the lacerated *outer calyx* or *involucrum;* will distinguish this from other genera in the same class and order.

One species British.

CO'RYLUS AVELLA'NA‡. Common Hazel-nut. Stock-nut.

SPEC. CHAR. Stipulas oblong, blunt. Leaves roundish, heart-shaped, pointed. Young branches hairy. Calyx bell-shaped, shorter than the nut.

Fig. 1. Catkin of Sterile Flowers.—Fig. 2. A separate Sterile Flower.—Fig. 3. Bud-like Catkin of Fertile Flowers.—Fig. 4. The same with the outer scales taken off.—Fig. 5. Germen and Pistils of a Fertile Flower.—Fig. 6. The Fruit; *a.* the shell; *b.* the kernel or seed; *c.* the umbilical cord.

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* From *korus*, Gr. a *casque* or *cap;* the fruit, with its involucrum, appearing as if covered with a bonnet. † See folio 93, note †.

‡ From *Avellino*, a city of Naples, in the neighbourhood of which nuts (the round Spanish), are cultivated in great abundance.

Engl. Bot. t. 723.—Hook. Fl. Lond. t. 17.—Hunt. Evel. Silva, p. 220, with a plate.—Linn. Sp. Pl. p. 1417.—Huds. Fl. Angl. (2nd ed.) p. 423.—Wild. Sp. Pl. v. iv. pt. i. p. 470.—Sm. Fl. Brit. v. iii. p. 1030.; Engl. Fl. v. iv. p. 157.—With. (7th edit.) v. ii. p. 491.—Lindl. Syn. p. 240.—Hook. Brit. Fl. p 410.—Macr. Man. Brit. Bot. p. 217.—Loud. Arb. et Frutic. Brit. p. 2017. f. 1941.—Lightf. Fl. Scot. v. ii. p. 586.—Sibth. Fl. Oxon. p. 127.—Abbot's Fl. Bedf. p. 211.—Davies' Welsh Bot. p. 90.—Purt. Midl. Fl. v. ii. p. 465.—Relh. Fl. Cant. (3rd edit.) p. 396.—Hook. Fl. Scot. p. 275.—Grev. Fl. Edin. p. 204.—Kent's Sylvan Sketches, p 154.—Fl. Devon. pp. 156 & 153.—Johnst. Fl. Berw. v. i. p. 208.—Winch's Fl. of Northumb. & Durh. p. 62.—Walker's Fl. of Oxf p. 284.—Bab. Fl. Bath. p. 46.—Dick. Fl. Abred. p. 56.—Irv. Lond. Fl. p. 114.—Luxf. Reig. Fl. p. 82.—Cow. Fl. Guide, p. 28.—Mack. Catal. Pl. Irel. p 83.; Fl. Hibern. p. 256.—*Corylus sylvestris*, Ray's Syn. p. 439.—Johns. Gerarde, p. 1438.—Gray's Nat. Arr. v. ii. p. 246.

Localities.—In woods, copses, and hedges; very common.

Shrub or low Tree—Flowers in March and April.

A large shrub, with numerous stems rising from the root; or a small bushy tree, with copious branches, which are hairy, or glandular, when young. *Bark* ash-coloured, and sometimes cloven, on the trunk; bright brown, and frequently spotted with white, on the branches. *Leaves* alternate, on short petioles, roundish, 2 or 3 inches wide, doubly serrated, darkish green, and slightly hairy above, paler, and more downy beneath. *Sterile Cathins* (fig. 1.) terminal, clustered, from 1 to 2 inches long, pendulous, greyish, opening in the early Spring, before the leaves appear. *Fertile Flowers* (see fig. 3.) in small, scaly, bud-like involucrums, their crimson stigmas protruding, in a tuft, at the summit. *Nuts* 2 or 3 together, sessile, roundish egg-shaped, about half covered by the greatly enlarged, jagged, permanent, outer *calyx* of their respective flowers.

Some suppose the *Filbert* to be a variety of the *Common Hazel*, but Sir J. E. Smith was of a different opinion, and considered the forms and proportions of the *calyx* of the fruit to indicate distinct species, permanent from seed.

As an underwood, the Hazel is valuable for making hoops, crates, hurdles, wattles, walking-sticks, fishing-rods, whip-handles, ties for fagots, springes to catch birds, and for fastening down thatch. Hazel rods, cut as nearly as possible of the same size, and varnished, form an admirable material for constructing rustic garden seats, flower-baskets, &c. (See Mr. Loudon's *Arb. et Frutic. Brit.* pp. 2023, 2024, and 2025; and his *Gard. Mag.* v. ix. pp. 615 and 678). The roots, when they are of sufficient size, afford curiously veined pieces, which are used in veneering cabinets, tea-chests, &c. The wood makes an excellent charcoal, which is preferred by painters and engravers, for the freedom with which it draws, and the readiness with which its marks can be rubbed out. It is a practice in Italy to put the chips of Hazel into turbid wine, to clear it, which it does in 24 hours; and in countries where yeast is scarce, the twigs of Hazel twisted together, so as to be full of chinks, and steeped in ale during its fermentation, then hung up to dry, may be put into wort instead of yeast. It is of the young twigs of this plant that the celebrated *divining rod*, for the detecting, and finding out of minerals, is taken. Even within these few years it has been very positively affirmed that the rod, when held in the hands of *certain* persons, will discover the presence of water; and it is remarked as extraordinary, that no effect is produced at a well or ditch, or where earth does not interpose between the twig and the water. See *Quarterly Review*, vol. xxii. pp. 373 & 374.—The kernels of the fruit (see fig. 6, *b.*) have a mild, farinaceous, oily taste, agreeable to most palates, though in large quantities they appear to be difficult of digestion, and have sometimes produced alarming symptoms. In the Highlands of Scotland the tree is considered of ill omen, but the finding of two nuts naturally conjoined highly felicitous. These they call *Cnò-chomhlaich*, and carry them as an efficacious charm against witchcraft. For an account of the many parasitical fungi that are to be found on this tree, as well as for the insects that feed upon it and its fruit, with many interesting particulars relating to its History, Geography, &c. &c., see Mr. Loudon's *Arb. et Frutic. Brit.* pp. 2016 to 2028.



. Artemisia Absinthium. Common Wormwood. 4

C Mathews lith. & Sc. Publ.d by W. Baxter Botanic Garden, Oxford. 1839.

ARTEMI'SIA *.

Linnean Class and Order. SYGENE'SIA†, POLYGA'MIA, SUPE'RFLUA‡.

Natural Order. COMPO'SITÆ§, tribe, CORYMBI'FERÆ||, *Juss.*—Lindl. Syn. pp. 140 & 142.; Introd. to Nat. Syst. of Bot. pp. 197 and 199.—Mack. Fl. Hibern. p. 142.—Hook. Brit. Fl. (4th edit.) p. 410.—COMPO'SITÆ; subord. ANTHEMI'DEÆ, Loud. Hort. Brit. pp. 520 & 522.—SYNANTHE'REÆ; tribe, CORYMBI'FERÆ, Rich. by Macgilliv. pp. 454 & 455.—CORYMBIFERÆ, sect. 4. Juss. Gen. Pl. pp. 177 & 184.—Sm. Gram. of Bot. pp. 121 & 123.; Engl. Fl. v. iii. p. 334.—SYRINGALES; subord. ASTEROSÆ; sect. ASTERINÆ; subsect. ASTERIANÆ; type, ASTERACEÆ; Burn. Outl. of Bot. pp. 900, 901, 920, 924, & 926.—COMPO'SITÆ, *Linn.*

GEN. CHAR. *Involucrum (common calyx)* (fig. 1.) egg-shaped or round, imbricated; scales rounded, convex, compact, membranous at the edges. *Corolla* (see fig. 2.) compound. *Florets* (fig. 3.) all tubular; those of the *disk* numerous, perfect, 5-toothed; those of the *circumference* few, slender, entire, without stamens. *Filaments* (see fig. 4.) 5, in the florets of the disk only, very short. *Anthers* united into a 5-toothed tube. *Germen* (see figs. 4 & 5) in all the florets small, inversely egg-shaped. *Style* (see figs. 3, 4, & 5.) prominent, deeply divided. *Stigmas* cloven or notched, recurved. *Seed* inversely egg-shaped, naked. *Receptacle* (see fig. 7.) rather convex, either naked or hairy.

The egg-shaped or rounded, imbricated *involucrum;* the awl-shaped, entire, inconspicuous *florets* of the ray; the naked or hairy *receptacle;* and the *seed* without any *pappus;* will distinguish this from other genera, with discoid flowers, in the same class and order.

Five species British.

ARTEMI'SIA ABSI'NTHIUM. Unpleasant Wormwood. Common Wormwood.

SPEC. CHAR. Leaves bipinnatifid, clothed with short, silky down; segments spear-shaped. Flowers hemispherical, drooping. Receptacle hairy.

Engl. Bot. t. 1230.—Woodv. Med. Bot. v. ii. p. 328. t. 120.—Linn. Sp. Pl. p. 1188.—Huds. Fl. Angl. (2nd edit.) p. 358.—Willd. Sp. Pl. v. iii. pt. iii. p. 1844.—Sm. Fl. Brit. v. ii. p. 864.; Engl. Fl. v. iii. p. 408.—With. (7th ed.) v. iii. p. 923.—Lindl. Syn. p. 149.—Hook. Brit. Fl. p. 355.—Macr. Man. Brit. Bot. p. 131.—Lightf. Fl. Scot. v. i. p. 467.—Sibth. Fl. Oxon. p. 250.—Abbot's Fl. Bedf. p. 179.—Davies' Welsh Bot. p. 77.—Purt. Midl. Fl. v. ii. p. 393.—Relh. Fl. Cant. (3rd edit.) p. 336.—Hook. Fl. Scot. p. 239.—Grev. Fl. Edin. p. 175.—Fl. Devon. pp. 136 & 158.—Johnst. Fl. Berw. v. i. p. 181.—Winch's Fl. Northumb. and Durh. p. 53.—Walker's Fl. of Oxf. p. 235.—Loud. Encycl. of Gard. (new edition,) p. 878. parag. 4652.—Bab. Fl. Bath. p. 27.—Irv. Lond. Fl. p. 146.—Mack. Catal. Pl. of Irel. p. 72.; Fl. Hibern. p. 151.—*Absinthium vulgare,* Ray's Syn. p. 188.—Gray's Nat. Arr. v. ii. p. 451.—*Absinthium latifolium sive ponticum,* Johnson's Gerarde, p. 1096.

Fig. 1. Involucrum.—Fig. 2. Corolla.—Fig. 3. A separate Floret.—Fig. 4. Stamens and Pistil.—Fig. 5. Germen, Style, and Stigmas.—Fig. 7. Receptacle and Involucrum.

* From *Artemis,* the DIANA of the Greeks; or, from *Artemisia,* wife of MAUSOLUS, King of Caria.

† See f. 91, n. †. ‡ See f. 36, n. ‡. § See f. 27, *a*. || See f. 36, *a*.

Localities.—In waste ground, old stone-pits, and about villages; frequent. Perennial.—Flowers in August, and September.

Root woody, branched at the crown, furnished with numerous fibres below. *Stems* numerous, a foot or more high, somewhat tufted, branched, striated, leafy, whitish, with very short down. *Leaves* alternate, numerous, doubly pinnatifid, with broadish, blunt, entire segments, clothed, like every other part of the herb, with close, silky hoariness; lower ones on long petioles; upper on shorter, broader, somewhat winged ones. *Flowers* in numerous, aggregate, leafy clusters, stalked, drooping, hemispherical. Scales of the *involucrum* bluntly egg-shaped, green, cottony at the back, the edges membranous; *florets* numerous, pale yellow, or buff coloured. *Style* large, very deeply cloven. *Receptacle* convex, clothed with fine upright hairs.

Sir J. E. Smith, in *English Flora*, mentions a variety having been found at Gamlingay, near Cambridge, in which the *leaves* that accompanied the flowers were much larger and broader than usual, and most of them undivided.

Wormwood is a native of almost every part of Europe; it is one of those domestic plants, which, associated with *mallow*, *mugwort*, *hemloch*, *dock*, &c. would seem to follow the footsteps of man, thriving amidst dust and rubbish, and to be found wherever a few miserable hovels are erected. Ramond and De Candolle observed several of these species among the ruins of cottages where shepherds had once lived, high on the Pyrennees; and some years ago Mr. Winch remarked the same circumstance in the Highlands of Scotland. "The constant appearance of these weeds about towns and villages," says Mr. Winch, in his *Essay on the Geographical Distribution of Plants*, &c. (2nd ed.) p. 20., "is a curious and inexplicable phenomenon, for no one ever cultivated such plants for utility, much less for ornament."

The leaves and flowers of Wormwood are intensely bitter, so as to become a proverb. They are employed in some parts of Wales as a substitute for hops; also laid in drawers and chests to drive away insects from clothes. A considerable quantity of essential oil rises from this herb in distillation, which is used both externally and internally to destroy worms. The leaves, put into sour beer, soon remove the ascescency. They resist putrefaction, and are therefore a principal ingredient in antiseptic fomentations. The vegetable alkali of the shops has been usually procured from this herb, and called Salt of Wormwood, but it retains none of its peculiar qualities.

Dr. Stokes says, that the plant steeped in boiling water, and repeatedly applied to a bruise, will remove the pain in a short time, and prevent the swelling and discoloration of the part.—Turkeys are fond of the plant, but scarcely an animal besides.—*Livia Absinthii*, and the rare and elegant Plume-moth, *Pterophorus spilodactylus*, are found upon it.

The trivial name of this plant, *(Absinthium,)* is derived from the Greek, and signifies, *without sweetness*. It is, therefore, very appropriately made the emblem of absence; which, according to La Fontain, is the greatest of evils. See *With. Bot. Arr.*, *Thornton's Fam. Herb.*, &c.



J. Russell. Del.

Linnaea borealis . Northern Linnaea ♃

C. Mathews &c.

Pub.d by W.Hunter Botanic Garden Oxford 1839

LINNÆ'A.

Linnean Class and Order. DIDYNA'MIA*, ANGIOSPE'RMIA†.

Natural Order. CAPRIFOLIA'CEÆ‡, *Dec.*; sect. LONICEREÆ; Lindl. Syn. p. 131.; Introd. to Nat. Syst. of Bot. pp. 206 & 207.—Rich. by Macgilliv. p. 460.—Loud. Hort. Brit. p. 519.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 435.—Mack. Fl. Hibern. p. 133.—Hook. Brit. Fl. (4th ed.) p. 409.—CAPRIFOLIA; sect. 1.; Juss. Gen. Pl. pp. 210 & 211.—Sm. Gram. of Bot. pp. 129 & 130.—SYRINGALES; subord. ASTEROSÆ; sect. RUBIACINÆ; type, CAPRIFOLIACEÆ; Burn. Outl. of Bot. v. ii. pp. 900, 901, & 902.—AGGREGATÆ, *Linnæus.*

GEN. CHAR. *Calyx* (see fig. 1, *b* & c.) double, both permanent; the superior one (fig. 1, c.) of 1 sepal, in 5 deep, upright, spear-shaped, pointed, equal segments; the inferior one (fig. 1, *b.*) of 4 sepals, the 2 interior opposite, minute, pointed, smooth; the 2 exterior opposite, contrary to the interior and much larger, elliptical, concave, glandular, finally enlarged, and closed over the interior sepals and fruit. *Corolla* (fig. 2.) of 1 petal, bell-shaped; tube cylindrical, gradually dilated upwards, about twice the length of the superior calyx; limb divided into 5 deep, nearly equal, slightly spreading segments. *Filaments* (see figs. 3 & 4.) 4, awl-shaped, from the base of the corolla, shorter than its limb; the two upper ones the shortest. *Anthers* incumbent, versatile, oblong, compressed. *Germen* (fig. 1, *d.*) globular, below the calyx of the flower (fig. 1, c.), of 3 cells. *Style* (see fig. 1, *e.*) cylindrical, the length of the corolla. *Stigma* blunt. *Fruit* a dry, 3-celled *berry*, with one cell only bearing a perfect seed (see fig. 5).

The double *calyx*, the inner of which is superior, and 5-cleft; the bell-shaped *corolla;* and the dry 3-celled *berry*, with one cell only bearing a perfect *seed;* will distinguish this from other genera in the same class and order.

Only one species known.

LINNÆ'A BOREA'LIS. Northern Linnæa. Two-flowered Linnæa.

SPEC. CHAR.

Engl Bot. t. 433.—Hook. Fl. Lond. t. 199.—Linn. Fl. Suec. (2nd ed.) p. 219. t. 1.; Spec. Pl. p. 880.; Fl. Lapp. (2nd ed.) p. 214. t. 12. f. 4.—Willd. Sp. Pl. v. iii. pt. 1. p. 340.—Sm. Fl. Brit. v. ii. p. 666.; Engl. Fl. v. iii. p. 142.—With. (7th edit.) v. iii. p. 741.—Gray's Nat. Arr. v. ii. p. 487.—Lindl. Syn. p. 132.—Hook. Brit. Fl. p. 291.—Macr. Man. Brit. Bot. p. 111.—Hook. Fl. Scot. p. 190.—Winch's Fl. of Northumb. and Durh. p. 42.—Don's Gen. Syst. of Gard and Bot. v. iii. p. 452. f. 82.—Dick. Fl. Abred. p. 44.—Irv. Lond. Fl. p. 261.—*Linnæa*, n. 299. Hall. Hist. v. i. p. 131, *fide* SMITH.—*Campanula Serpillifolia*, Bauh. Pin. p. 93.

LOCALITIES.—In dry, stony, shady, mossy, fir woods on mountains; very rare.—*Northumberland;* In an old fir plantation at Catcherside, four miles west of Wallington; growing with *Trientalis europæa* and *Pyrola minor*, its only

Fig. 1. A partial Flower-stalk, showing, *a.* the bractea or floral leaf; *b.* the outer calyx (or involucrum); *c.* the inner calyx; *d.* the germen; and *e.* the style and stigma.—Fig. 2. The Corolla.—Figs. 3 & 4. The stamens.—Fig. 5. Transverse section of the Germen, reduced from *Flora Londinenses.*

* See folio 31, note †. † See folio 72, note ‡. ‡ See folio 128, *a.*

known station in England; where it was first discovered by Miss Emma Trevellyan, of Wallington House.—SCOTLAND. *Aberdeenshire;* First found in an old fir-wood at Inglismaldie, in 1795, by Prof. *James Beattie:* Sir J. E. Smith. Kingcusie, seven miles from Aberdeen: Mrs. Boswell. Crebstone, five miles from Aberdeen; and at Kemnay, sixteen miles N. W. from Aberdeen: Mr. Maughan. Within three miles of Alford, at Coreen, about twenty yards W. of the foot-path leading from Culhay to Dubstone, in the north opening of a deep dingle that passes through the top of the hill, amidst a tall, but rather open, growth of *Calluna vulgaris*, mingled with *Arbutus Uva Ursi* and *Vaccinium Vitis Idæa:* Dr. A. Murray.—*Elginshire;* Knock of Alves, near Elgin; Gordon Castle Woods: Rev. G. Gordon, in N. B. G.—*Forfarshire;* Glen Dole, in great plenty amongst the heather on the left side, between the station of *Oxytropis campestris* and *Astragalus alpinus*, but at a lower elevation: Mr. Watson, in N. B. G.—*Inverness-shire*, In a fir-wood, called Drummond, one mile to the S. W. of Inverness: Mr. Unquhart.—*Perthshire;* Fionlarig Woods near Killin: Mr. Watson, in N. B. G. Hill of Kinnoul, near Perth: Messrs. Brown.—*Ross-shire;* Near Brahan Castle: Mr. Urquhart. Perennial.—Flowers in May and June.

Root fibrous. *Stems* trailing, thread-shaped, branched, woody; the young shoots hairy and leafy, often reddish. *Leaves* opposite, on shortish petioles, roundish, or broadly egg-shaped, with 2 or 3 bluntish teeth on each side above the middle, the base quite entire; veiny, firm, slightly hairy, of a full green above, paler beneath. *Stipulas* none. *Peduncles (flower-stalks)* axillary, upright, about a finger's length, bearing each two elegant, drooping, flesh-coloured flowers at the apex, which are said to be very fragrant at night, with the scent of *Meadow-sweet*. A pair of very small leaves stand at the origin of the partial flower-stalks, or pedicels, and there is often a larger pair or two at the lower part of each peduncle. *Corolla* variegated internally with rose-colour and yellow.

This beautiful little plant is a native of Lapland, Sweden, Norway, Russia, Germany, Switzerland, Savoy, Siberia, and N. America. It was not known to be indiginous to Britain till 1795, when it was first found as stated above in the localities.—The blossoms are gathered by the natives of Lapland for making an infusion, which is employed in removing rheumatic disorders.

This "humble, despised, and neglected Lapland plant, flowering at an early age, was named by Dr. J. F. Gronovius, with the concurrence of Linnæus himself, in allusion to the unobtrusive habits of the great philosopher, whose genius, immortal as it now appears, was long in obtaining due consideration. This celebrated and most enlightened reformer of Natural History, the son of a Swedish clergyman, was born at Rashult, in 1707, and by extraordinary merit and the publication of various elaborate performances, succeeded to the Professorship of Botany and Medicine at Upsal, received the honour of knighthood from his sovereign Adolphus, and was ultimately elevated to the rank of nobility. He died in 1778, but not till his fame, established on an imperishable foundation, had extended throughout the civilized world." *Sm. Eng. Fl.; With. Bot. Ar. &c.*

The following Sonnet, addressed to this humble, but highly interesting plant, was written expressly for this work, by Mr. W. L. Beynon, of Barton-under-Needwood, Staffordshire; and communicated to me by my respected friend Mr. T. S. Allen, of Oxford.

Linnæa! shielding from inclement skies
Thy loveliness in shades of thickest gloom!
What though by magic of thy name is brought
No fair poetic vision to our eyes,—
What though no bard of elder Greece or Rome
Hath garlanded thy sweetness,—nor hath sought
Minstrel of later days to wreath thy bloom,
With glowing sentiment, or tender thought:—
Thou hast a charm for me. 'Tis thine to bear
To distant generations, fresh and fair,
His name, whose meteor-genius gave to see,
In all that tenant earth, or sea, or air,
Designing wisdom and presiding care,
The visible impress of the Deity.



Tormentilla officinalis. Common Tormentil 4

I Hufsell Del
Pub.d by W. Baxter, Botanic Garden, Oxford 1839
C Mathews S.

TORMENTI'LLA *.

Linnean Class and Order. Icosa'ndria †, Polygy'nia.

Natural Order. Rosa'ceæ ‡, Juss. Gen. Pl. p. 334.—Sm. Gram. of Bot. p. 171.—Lindl. Syn. p. 88.; Introd. to Nat. Syst. of Bot. p. 81.—Rich. by Macgilliv. p. 528.—Loud. Hort. Brit. p. 512.; Arbor, et Frutic. Brit. v. ii. p. 670.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 523.—Mack. Fl. Hiber. p. 85.—Hook. Brit. Fl. (4th ed.) p. 404.—Rosales; sect. Rosinæ; subsect. Rosianæ; type, Rosaceæ; subtype, Fragaridæ; Burn. Outl. of Bot. v. ii. pp. 614, 683, 699, & 700.—Senticosæ, *Linn.*

Gen. Char. *Calyx* (see fig. 1.) inferior, permanent, of 1 sepal, in 8 deep segments; the 4 outer ones alternate with the inner, and narrowest. *Corolla* (see fig. 2.) of 4 inversely heart-shaped, spreading petals, which are opposite to the outer segments of the calyx, and attached by their very short claws to its rim. *Filaments* (see fig. 4.) 16 or more, awl-shaped, upright, attached to the rim of the calyx, not half the length of the corolla. *Anthers* roundish, upright, of 2 cells, bursting lengthwise. *Germens* (see fig. 1.) superior, about 8, roundish, small, smooth, collected into a round head. *Styles* (see fig. 5.) thread-shaped, short, upright, one to each germen, lateral, deciduous. *Stigmas* blunt. *Seeds (nuts)* egg-shaped, naked, very obscurely and partially wrinkled, smooth, placed upon a small, depressed, densely hairy, dry, permanent receptacle.

Distinguished from other genera, in the same class and order, by the 8-cleft *calyx;* the 4-petalled *corolla;* the naked, smooth, beardless *seeds;* and the small, dry *receptacle.*

It differs from *Potentilla*, with which some authors unite it, only in the number of the parts of the flower (see folio 313).

Two species British.

TORMENTI'LLA OFFICINA'LIS. Officinal Tormentil. Common Tormentil. Septfoil.

Spec. Char. Stem ascending, branched. Leaves ternate, all sessile; leaflets spear-shaped, deeply serrated. Stipulas cut.

Engl. Bot. t. 863.—Curt. Fl. Lond. t. 337.—Sm. Fl. Brit. v. ii. p. 552.; Engl. Fl. v. ii. p. 427.—With. (7th ed.) v. iii. p. 636.—Hook. Brit. Fl. p. 253.—Davies' Welsh. Bot. p. 51.—Purt. Midl. Fl. v. i. p. 240.—Relh. Fl. Cant. (3rd edit.) p. 206.—Hook. Fl. Scot. p. 164.—Johnst. Fl. Berw. v. i. p. 116.—Winch's Fl. of Northumb. and Durh. p. 35.—Walker's Fl. of Oxf. p. 145.—Dick. Fl. Abred. p. 41.—Irv. Lond. Fl. p. 189.—Luxf. Reig. Fl. p. 45.—Cow. Fl. Guide, p. 51.—Mack. Cat. Fl. Irel. p. 50.; Fl. Hibern. p. 94.—*Tormentilla erecta*, Linn. Sp. Pl. p. 716.—Huds. Fl. Angl. (2nd edit.) p. 225.—Willd. Sp. Pl. v. ii. pt. ii. p. 1112.—Light. Fl. Scot. v. i. p. 272.—Relh. Fl. Cant. (1st edit.) p. 198.—Woodv. Medical Bot. v. i. p. 27. t. 9.—Thornt. Fam. Herb. p. 503, with a figure.—*Tormentilla*, Ray's Syn. p. 257.—Johns. Ger. p. 992.—*Potentilla Tormentilla*,

Fig. 1. Calyx and Germens.—Fig. 2. Corolla.—Fig. 3. A Petal.—Fig. 4. Calyx, Stamens, and Pistils.—Fig. 5. Germen, Style, and Stigma.—Fig. 6. Seed.

* From *tormina*, the *dysentery*, in the cure of which it was employed on account of its astringent qualities. Hooker.

† See folio 100, note †. ‡ See folio 313, *a*.

Sibth. Fl. Oxon. p. 162.—Abbot's Fl. Bedf. p. 114.—Grev. Fl. Edin. p. 116.—Lindl. Syn. p 97.—Bab. Fl. Bath. p. 15.—Macr. Man. Brit. Bot. pp. 68 & 69.—*Potentilla officinalis*, Gray's Nat. Arr. v. ii. p. 583.—Fl. Devon. pp. 88 & 172.

Localities.—In barren pastures, moors, and heathy places; frequent.

Perennial.—Flowers in June, July, and August.

Root thick and woody, varying both in size and shape, brown on the outside, reddish within. *Stems* many, from 6 inches to a foot or more long, weak, slender, and wiry, more or less branched, often procumbent, though usually supporting themselves on neighbouring bushes. *Leaves* ternate, nearly sessile, somewhat hairy; dark green above, paler beneath; *leaflets* oblong, pointed, deeply and regularly serrated. *Stipulas* rather large, deeply cleft into two, three, or more lobes, and making the leaves appear quinate at first sight. *Flowers* small, on long, slender, hairy, axillary and terminal, pedicels. *Calyx* ribbed, hairy. *Petals* usually 4, of a fine yellow colour, with a faint tinge of orange at the base, their claws very short. *Stamens* about 16 or 18. *Pistils* from 8 to 16. *Germens* smooth. *Style* thread-shaped, inserted into the side of the germen above the base. *Seeds* few, wrinkled in the upper part. *Receptacle* small, thickly clothed with fine transparent hairs about the length of the germens.—Sometimes the calyx varies with ten segments, and the corolla with five petals, when it becomes difficult to distinguish it from *Potentilla*, but the number 4, and its multiples, usually predominates in the flowers of this genus.

Sir J. E. Smith informs us, that "the late Miss Johnes, of Hafod, gathered the Tormentil in Cardiganshire, with double blossoms, like little yellow roses."

The roots of this species rank with the strongest vegetable astringents, and as such have a place in the modern practice of physic. They are used in the Hebrides and Orkneys to tan leather, for which purpose they are said to be superior even to oak-bark; one pound and a half of the roots being equal to seven pounds of ordinary tan. In Lapland its root is chewed along with the inner bark of the Alder, and the saliva thus impregnated is applied to leather, to dye it of a red colour. Thus their harness, reins, girdles, gloves, &c. are tanned. According to the observations of Linnæus, cows, goats, sheep, and swine, eat this plant; but horses refuse it.—Bulleyn, in his "Book of Simples," asserts, on the authority of the Norfolk shepherds, that *Tormentil* in pastures prevents that very destructive disease, the rot in sheep.

TO VEGETATION.

" Painter of Landscapes! Vegetation, hail!
Dearly I love thee in thy every hue;
Whether thy pencil, in the mead and dale,
Tinges the flowers with yellow, white, or blue,
To deck thy emerald mantle; or in groves
Of thickest foliage waves the darkest green;
Or in Carnation, Rose, and Tulip, loves
To make them each appear the garden's queen:
I court thee, too, where Furze and Heath-flowers grow
In the rude forest, and the desart wild,
And, oftentimes, to trace thy footsteps go
To rocks and caves, where sunbeam seldom smiled;
For there the Moss and Liverwort can tell
The searching magic of thy potent spell."

R. MILLHOUSE.



Humulus Lupulus. Common Hop U

C. Mathews Del. & Sc.

Pub.d by W. Baxter, Botanic Garden, Oxford. 1839.

HU'MULUS*.

Linnean Class and Order. DIŒ'CIA†, PENTA'NDRIA.

Natural Order. URTI'CEÆ, Lindl. Syn. p. 218.; Introduct. to Nat. Syst. of Bot. p. 93.—Rich. by Macgilliv. p. 540.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 232.—Hook. Brit. Fl. (4th ed.) p. 419.—URTICÆ, Juss. Gen. Pl. p. 400.—Sm. Gr. Bot. p. 188.—QUERNEALES; sect. URTICINÆ; type, URTICACEÆ; subtype, CANNABIDÆ; Burn. Outl. of Bot. v. ii. pp. 523, 541, and 560.—SCABRIDÆ, *Linn.*

GEN. CHAR. *Sterile Flowers* (see figs. 1 & 2). *Calyx* (see f. 2.) of 5 oblong, concave, blunt sepals. *Corolla* none. *Filaments* (see fig. 2.) 5, hair-like, very short. *Anthers* vertical, oblong, of 2 cells, opening by 2 terminal pores (see fig. 3). *Fertile Flowers* (see f. 4.) in a lax, membranous *catkin*. *Scales* numerous, imbricated, concave, entire, single-flowered (see f. 5.), permanent. *Corolla* none. *Germen* (see figs. 5 & 6.) superior, minute, oblong. *Styles* (see figs. 5 & 6.) 2, awl-shaped, spreading, downy. *Stigmas* simple. *Seed* (fig. 7.) tunicated, attached to the base of each enlarged, membranous, dry scale of the *catkin* or *cone*. *Embryo* spiral.

The *sterile flowers* of a single perianth of 5 leaves; and the *fertile flowers* in a lax, membranous cone, of large, concave, entire, single-flowered *scales;* will distinguish this genus from others in the same class and order.

Only one species known.

HU'MULUS LU'PULUS‡. Common Hop§.

SPEC. CHAR.

Engl. Bot. t. 427.—Linn. Sp. Pl. p. 1457.—Huds. Fl. Angl. (2nd ed.) p. 433.—Willd. Sp. Pl. v. iv. pt. II. p. 769.—Sm. Fl. Brit. v. iii. p. 1077.; Engl. Fl. v. iv. p. 240.—With. (7th edit.) v. ii. p. 350.—Lindl. Syn. p. 219.—Hook. Brit. Fl. p. 436.—Macr. Man. Brit. Bot. p. 206.—Lightf. Fl. Scot. v. ii. p. 615.—Bryant's Flora Diœtetica, p. 66.—Sibth. Fl. Oxon. p. 90.—Abb. Fl. Bedf. p. 214.—Thorn. Fam. Herb. p. 816, with a figure.—Davies' Welsh Bot. p. 94.—Purt. Midl. Fl. v. ii. p. 475.—Relh. Fl. Cant. (3rd ed.) p. 407.—Hook. Fl. Scot. p. 288.—Grev. Fl. Edin. p. 209.—Fl. Devon. pp. 159 & 136.—Winch's Fl. of Northumb. and Durh. p. 64.—Burnett's Outl. of Bot. v. ii. p. 560. paragr. 1647—1650.—Walker's Fl. of Oxf. p. 295.—Baxt. Lib. of Agricul. & Horticul. Knowl. (2nd ed.) p. 325.—Loud. Encycl. of Gard. (new edit.) p. 855. paragr. 4351.; Encycl. of Agricul. (2nd edit.) p. 924. paragr. 5997, with a figure.—Bab. Fl. Bath. p. 15.—Irv. Lond. Fl. p. 119.—Luxf. Reig. Fl. p. 84.—Cow. Fl. Guide, p. 34.—Mack. Cat. of Pl. of Irel. p. 86.; Fl. Hibern. p. 233.—*Lupulus communis*, Gray's Nat. Arr. v. ii. p. 252.—*Lupulus mas et fœmina*, Ray's Syn. p. 137.—*Lupus salictarius*, Johns Ger. p. 885.

LOCALITIES.—In thickets and hedges, especially on a calcareous or loamy soil; frequent.

Perennial.—Flowers in July and August.

Figs. 1 & 2. Sterile Flowers.—Fig. 3. A single Stamen.—Fig. 4. A Catkin of Fertile Flowers.—Fig. 5. A separate Fertile Flower.—Fig. 6. Germen, Styles, and Stigmas, with the Tunic.—Fig. 7. Seed.—Figs. 3 & 6, *magnified.*

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* From *humus; rich soil* or *mould*, in which the plant flourishes. HOOKER.

† See folio 143, note †.

‡ *Lupulus* is a corruption of the old name, *Lupus Salictarius*, the *Willow-wolf*, as it was formerly called on account of its growing amongst osiers, to which, by twining round, overbearing and choking them, it became as destructive as the wolf to the flock.

§ From the Anglo-Saxon *hoppan*, to *climb*.

Root moderately creeping, branched. *Stems* herbaceous, weak and twining, not climbing by means of tendrils, but ascending trees, shrubs, or poles by their own spiral form, which is always according to the apparent motion of the sun, or from left to right, supposing the observer in the centre; these stems are many feet long, branched, leafy, angular, often twisted, hollow, and rough with small hooked prickles. *Leaves* opposite, on longish prickly petioles, heart-shaped, pointed, serrated, either undivided, or 3-lobed, sometimes 5-lobed, very rough on both sides with minute points. *Stipulas* large, membranous, reflexed, between the petioles. *Flowers* greenish-yellow, pendulous; the *sterile* ones in compound, axillary panicles (see fig. 1.); the *fertile* ones on a distinct plant from the *sterile* ones, egg-shaped, in pendulous, cone-like catkins (see f. 4).

The Hop plant is a native of most parts of Europe, also of Japan. The young shoots, when they have risen 3 or 4 inches from the root, are gathered and eaten early in the Spring, boiled like asparagus, to which they are very little inferior; they are occasionally sold in the market, under the name of Hop-tops. From the stems of the Hop a strong cloth is made in Sweden, and they are said to contain one of the very best materials for making all kinds of paper. A decoction of the roots, from 1 to 2 ounces; or an extract of them, to the quantity of 20 or 30 grains, is said to be sudorific, and to answer the purposes of Sarsaparilla.—Horses, cows, goats, sheep, and swine, eat the plant.

Papilio Io, *Papilio C. album*, *Phalæno Humuli*, and *Phalæna rostralis*, live upon it; and it is often much injured by the Honey-dew, which is the excrement of a small green fly, *(Aphis Humuli)*. A very small fungus, *Erysiphe macularis (Hop Mildew)*, Hook. Brit. Fl. v. ii. pt. ii. p. 325, is often parasitical on the leaves.

The *Hops* of Commerce are the ripe catkins or cones of the fertile flowers of this plant, their use for the preservation of beer, and the culture of the plant, are said to have been first introduced into England from Flanders, in the reign of Henry the VIIIth, about the year 1524. Before that time *Ground-Ivy*, called also *Ale-hoof*, or *Tun-hoof (Glechoma hederacea*, t. 136) was generally used for preserving beer; but now all public brewers are enjoined under a severe penalty to use no other bitter than Hops for their malt liquors. A pillow filled with Hops is reported to produce comfortable repose in cases where opiates have been unsuccessful. The Hop is now extensively cultivated in some parts of England, especially in Kent, Worcestershire, Herefordshire, Sussex, and Essex.*

The *Natural Order*, URTICEÆ, consists of dicotyledonous *trees*, or *shrubs*, or *herbs*, whose *leaves* are either alternate or opposite; with membranous *stipulas*. Their *flowers* are monœcious or diœcious, and apetalous, (without a corolla). Their *calyx* is membranous, lobed, and permanent; their *stamens* definite, with the anthers curved inwards in æstivation, but curving backwards with elasticity when bursting. The *ovary*, which is superior, is simple, with a single upright *ovule*. The *fruit* is a simple, indehiscent nut, surrounded by the *calyx*, which is either membranous or fleshy.

The British genera belonging to this order are *Parietaria*, t. 224; *Urtica*, t. 298; and *Humulus*, t. 342.

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* Mr. E. J. LANCE has lately published a Work, under the title of "*The Hop Farmer.*" It contains a complete account of Hop culture, its History, Laws, Uses, &c.



Trientalis europæa. Chickweed Winter-green.

I. Russell. Del. Pub.d by W. Baxter Botanic Garden Oxford. 1839 C. Mathews Sc.

TRIENTA'LIS.

Linnean Class and Order. HEPTA'NDRIA†, MONOGY'NIA.

Natural Order. PRIMULA'CEÆ‡, *Vent.*—Lindl. Syn. p. 182.; Introd. to Nat. Syst. of Bot. p. 225.—Rich. by Macgilliv. p. 431.—Loud. Hort. Brit. p. 529.—Mack. Fl. Hib. p. 192.—Hook. Brit. Fl. (4th edit.) p. 415.—LYSIMACHIÆ, sect. 1. Juss. Gen. Pl. p. 95.—Sm. Gr. of Bot. p. 95.—SYRINGALES; subord. PRIMULOSÆ; sect. PRIMULINÆ; type, PRIMULACEÆ; subty. PRIMULIDÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 1020, 1024, & 1025.—ROTACEÆ, *Linn.*

GEN. CHAR. *Calyx* (fig. 1.; and fig. 2, *a*.) inferior, of 7 awl-shaped, pointed, spreading, permanent sepals. *Corolla* (see fig. 2, *b*.) of 1 petal, wheel-shaped, in 7 deep, spreading, elliptic-spear-shaped, nearly equal, segments, alternate with the sepals, very slightly connected. *Filaments* 7, hair-like, spreading, the length of the calyx, shorter than the corolla, inserted into the base of each segment. *Anthers* terminal, oblong, recurved. *Germen* (fig. 3.) globose, superior. *Style* (see fig. 3.) cylindrical, rather swelling upwards, the length of the stamens. *Stigma* blunt. *Capsule* globose, of 1 cell, and 7 elliptic-oblong valves (see fig. 4.), rarely fewer, shorter than the calyx, with blunt, recurved points. *Seeds* (see figs. 4, 5, & 6.) few, roundish, somewhat angular at the inner side, each invested with a lax, white, membranous, reticulated *tunic*, and all together covering the large, central, globose, cellular *receptacle* (see fig. 7).

The parts of fructification were observed by LINNÆUS to vary occasionally as to number. SMITH.

The *calyx* of 7 sepals; the *corolla* in 7 deep, equal and flat segments; the 7-valved *capsule*; and the tunicated (coated) seeds; will distinguish this from other genera in the same class and order.

One species British.

TRIENTA'LIS EUROPÆ'A. European Chickweed Wintergreen.

SPEC. CHAR. Leaves inversely egg-oblong; the lowermost very blunt.

Engl. Bot. t. 15.—Hook. Fl. Lond. t. 161.—Fl. Dan. t. 84.—Linn. Sp. Pl. p. 488.; Fl. Suec. (2nd ed.) p. 122.; Fl. Lapp. (2nd ed.) p. 109.—Huds. Fl. Angl. (2nd ed.) p. 160.—Willd. Sp. Pl. v. ii. pt. 1. p. 282.—Sm. Fl. Brit. v. i. p. 406.; Engl. Fl. v. ii. p. 208.—With. (7th ed.) v. ii. p. 466.—Gray's Nat. Arr. v. ii. p. 301.—Lindl. Syn. p. 185.—Hook. Brit. Fl. p. 173.—Macr. Man. Brit. Bot. p. 190.—Lightf. Fl. Scot. v. i. p. 194.—Hook. Fl. Scot. p. 115.—Johnst. Fl. of Berw. v. ii. p. 279.—Winch's Fl. of Northumb and Durh. p. 24.—Dick. Fl. Abred. p. 35.—Irv. Lond. Fl. p. 242.—*Herba Trientâlis*, Bauh. Hist. v. iii. pp. 536 and 537, with a figure.—*Alsinanthemos*, Ray's Syn. p. 286.

Fig. 1. Calyx.—Fig. 2. A Flower; *a*. the calyx; *b*. the corolla.—Fig 3. Germen, Style, and Stigma.—Fig. 4. A Capsule, with the valves separated, and reflexed.—Fig. 5. Two of the Seeds.—Fig. 6. A Seed, *magnified*.—Fig. 7. Receptacle, and reflexed valves of the Capsule.

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* From *triens*, the third part of any thing, usually of a foot measure. A name borrowed by LINNÆUS from JOHN BAUHIN, who calls this pretty little plant *Herba Trientalis*, alluding to its humble stature. SMITH.

† The 7th class in the artificial System of LINNÆUS; it contains those plants which have perfect flowers, with 7 stamens in each. ‡ See folio 295, *a*.

Localities.—Woods and turfy heaths in mountainous countries. In the North of England, but very rare.—*Durham;* Allum Works near Carleton Gisborough: Mr. Weigheil. Waskerly Park, near Wolsingham: Mr. Thornhill. Near Butsfield and Spring-houses: N. J. Winch, Esq. On the wooded and rocky hill above Hepburn, at Chillingham, plentiful; and on Hedgehope, about half way to the summit: Dr. G. Johnston.—*Northumberland.* On moors a mile and a half east of Rothbury: N. J. Winch, Esq. Beyond the Roman Wall, five miles north of Hexham, and on moors west of Harbottle: T. Willisel, in *Ray's Syn.* In a fir plantation at Catcherside, four miles west of Wallington, on moors about Green Leighton, and by Rothley: Miss Emma Trevelyan. In the plantation surrounding Brislie Tower: Mr. F. Ministy. Near Bassington, three miles west of Alnwick: Miss Pringle. Abundant in a moorish pasture above Twizell House; Rugley Dean; and on high grounds near Ross Castle, Chillingham: N. J. Winch, Esq.—*Yorksh.* At the eastern extremity of Knumbles Meer near Helwick, among rushes: T. Willisel, in *Ray's Syn.* Moors near Helmsley: Mr. Teesdale. Boggy pasture near Pateley Bridge, and near Ripon: Mr. Brunton. Dallow Gill: Rev. J. Dalton. Moors near Harrowgate, and above Kirby-Moorside: Rev. Auchineacon Pierson. Near Scarborough: Rev. A. Bloxam. Woody bank near the Race Ground, Scarborough: E. F. Witts, Esq. On the top of Swill Hill, 1300 feet of elevation, four miles from Halifax, on the road to Keighley, where it has probably attained its southern limit in Great Britain: N. B. G.—SCOTLAND. *Aberdeensh.* Stocket Moor; Hazelhead Woods; Hills at Nigg, and numerous other woods and moors; abundant: Mr. Dickie, in *Fl. Abred.* Castleton, on the roof of a house; Braemar Moors; and Avon Hills: Mr. H. C. Watson, in N. B. G.—*Argylesh.* Loch Ransa, Arran: Mr. Murray.—*Edinburghsh.* Near the Old Reservoir above Colinton, and at Ravelrig: N. B. G.—*Elginsh.* Oak-wood, Knock of Alves, Logie, Dunphail Urquhart, &c. &c.: Rev. G. Gordon, in N. B. G.—*Fifesh.* Townhill Wood, Dunfermline: N. B. G.—*Forfarsh.* On the summit of the Clova Mountains: Mr. Don. On hillocks in Glen Clova; and ascending to the table-lands above Glen Dole: N. B. G. In the Beech and Fir Woods of Kinnaidy: Sir W. J. Hooker.—*Inverness-shire;* Near Inverness: N. B. G. Field of Culloden: Mr. Murray.—*Nairnsh.* Frequent: Rev. G. Gordon.—*Perthsh.* In a fir-wood one mile from Killin; woods near Finglen, S. side of Loch Tay. Woods at Dunkeld; Dungarn-hill; Stuath earn; Duinblane; and Clumie: N. B. G. Ben Lawers; and Coppice near Auchmore: *Bot. Misc.* Duke of Athol's woods at Blair: Lightfoot.—In *Ross-sh.* Rev. G. Gordon.—*Skelkirksh.* Blackhouse Heights: Mr. Stewart.—In *Shetland:* N. B. G.—*Sterlingsh.* On Ben-Lomond, about one mile of the way up: Lightfoot.—Not found in IRELAND.

Perennial.—Flowers in May and June.

Root slightly tuberous, somewhat creeping. *Stems* from 3 to 6 inches high, simple, upright, roundish, with 2 or 3 small, distant, bluntish leaves, and from 4 to 8 terminal, larger ones, which are inversely egg-shaped, pointed, smooth, and tapering to a stalk at the base. *Peduncles (flower-stalks)* from 1 to 4, from the axils of the upper leaves, 2 or 3 inches long, upright, slender, naked, simple, single-flowered. *Flowers* very elegant, of a brilliant white, tinged with pink, upright, drooping during the night and in rainy weather. *Anthers* and *Stigma* often reddish. *Seeds* from 8 to 10, brown, minutely dotted, and covered with a white membranous beautifully reticulated *tunic.*

This elegant plant is a native of the northern parts of Europe, and Siberia, in woods on the sides of mountains, and on turfy heaths. Linnæus appears to have been quite enchanted with it, from its being the only Lapland (as it is also the only British) genus of the seventh class of his artificial System; the number of its stamens, however, are liable to vary, and in the latter part of the season they seldom exceed six in each flower, but whatever their number may be, that of the divisions of the calyx and the corolla, and of the valves of the capsule, always correspond with it. The same great Naturalist remarks, that when growing in dry places, the plant has always the apices of the petals acute; and that these are, on the contrary, obtuse, when it inhabits a moist situation.

The Drawing for the accompanying Plate was made from a plant kindly communicated to me by W. Borrer, Esq.



Hordeum murinum. *Wall Barley.* ⊙

C. Mathews, Del. & Sc. Pub.d by W. Baxter Botanic Garden Oxford 1834

HO'RDEUM *.

Linnean Class and Order. TRIA'NDRIA †, DIGY'NIA.

Natural Order. GRAMI'NEÆ, Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71.—Lindl. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. Hibern. p. 294.—Hook. Brit. Fl. (4th ed.) p. 426.—GRAMINA, *Linn.*—GRAMINALES; sect. TRITICINÆ; type, HORDEACEÆ; Burn. Outl. of Bot. v. i. pp. 359 & 362.

GEN. CHAR. *Spike* imbricated. *Rachis (common receptacle)* many-flowered, jointed, elongated, toothed alternately at each side, the intermediate spaces flattened, and bordered. *Spikelets* 1-flowered, 3 at each tooth of the rachis (see fig. 1.), not all perfect, unequally stalked. *Calyx* (see fig. 2, *a.*) of 2 rather slender, variously shaped, pointed or awned, parallel, upright glumes. *Corolla* (see fig. 2.) of 2 paleæ, the outer (fig. 2, *b.*) egg-shaped, concave, angular, terminating in a long, straight, rough *awn*, rising above the awn of the calyx; inner palea (fig. 2, *c.*) smaller, spear-shaped, flat, inflexed at the edges, pointed. *Nectary* (fig. 3.) of 2 pointed scales. *Filaments* (see fig. 2.) 3, hair-like, shorter than the paleæ (fig. 2, *b* & *c*). *Anthers* notched at each end. *Germen* (see fig. 4.) turbinate. *Styles* (see fig. 4.) very short. *Stigmas* (see fig. 4.) feathered along the upper side. *Seed* (fig. 5.) egg-oblong, pointed at each end, with a narrow channel along the upper side, firmly coated with both the paleæ.

The single-flowered *spikelets*, 3 together at each joint of the rachis, the central *one* only perfect; and the *calyx* of 2 parallel glumes; will distinguish this from other genera with a spiked inflorescence, in the same class and order.

Three species British.

HO'RDEUM MURINUM. Wall Barley. Way-side Barley. Mouse Barley. Way Bennet. Way Bent. Wild Rie. Rie-grass. Squirrel-tail Grass.

SPEC. CHAR. Glumes of the intermediate floret strap-spear-shaped, fringed; those of the lateral florets bristle-like, rough.

Engl. Bot. t. 1971.—Curt. Fl. Lond. t. 325.—Knapp's Gram. Brit. t. 104.—Host. Gram. Austr. v. i. p. 25. t. 32.—Mart. Fl. Rust. t. 43.—Graves' Brit. Grasses, t. 125.—Linn. Sp. Pl. p. 126.—Huds. Fl. Angl. (2nd ed.) p. 56.—Willd. Sp. Pl. v. i. pt. 1. p. 474.—Sm. Fl. Brit. v. i. p. 155.; Engl. Fl. v. i. p. 179.—With. (7th ed.) v. ii. p. 203.—Lindl. Syn. p. 296.—Hook. Brit. Fl. p. 53.—Macr. Man. Brit. Bot. p. 276.—Lightf. Fl. Scot. v. i. p. 108.—Sibth. Fl. Oxon. p. 51.—Abbot's Fl. Bedf. p. 26.—Curt. Obs. on Brit. Grasses, (5th ed.) p. 29.—Davies' Welsh Bot. p. 13.—Purt. Midl. Fl. v. i. p. 88.—Relh. Fl. Cant. (3rd ed.) p. 50.—Hook. Fl. Scot. p. 46.—Grev. Fl. Edin. p. 32.—Sincl. Hort. Gram. Woburn. pp. 27 & 268.—Fl. Devon. pp. 24 & 121.—Johnst. Fl. Berw. v. i. p. 31.—Winch's Fl. Northumb. and Durh. p. 8.—Walker's Fl. of Oxford, p. 32.—Bab. Fl. Bath.

Fig. 1. A set of 3 Spikelets.—Fig. 2. A single Sterile Spikelet, or Floret; *a.* the two glumes of the calyx; *b.* the outer palea of the corolla; *c.* the inner palea of ditto.—Fig. 3. The Nectary.—Fig. 4. The Germen, Styles, and Stigmas.—Fig. 5. A Seed.—*All slightly magnified.*

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* From *horreo*, to set up as bristles or hair through anger or fear; in allusion to the ears of barley being conspicuously awned. Dr. WITHERING.

† See folio 56, note †.

p. 60.—Mur. Northern Fl. p. 81 —Dick. Fl. Abred. p. 25.—Irv. Lond. Fl. p. 101.—Luxf. Reig. Fl. p. 10.—Cow. Fl. Guide, p. 34.—Mack. Cat. Pl. of Irel. p. 16.; Fl. Hibern. p. 314.—*Hordeum spurium*, Johnson's Gerarde, p. 73.—*Zeocriton murinum*, Gray's Nat. Arr. v. ii. p. 90.—*Gramen secalinum et sacale sylvestre*, Ray's Syn. p. 391.

Localities.—On waste ground, by walls, and road-sides; very common in ENGLAND, more rare in SCOTLAND.

Annual.—Flowers from June to August.

Root fibrous. *Stems (culms)* numerous, from a foot to 18 inches high, round, smooth, leafy, nearly upright, except at the base, where they are usually more or less decumbent and bent at the joints. *Leaves* strap-shaped, tapering to a point, flat, roughish, with a few scattered hairs on both surfaces, and two small membranous appendages at the base, which embrace the stem; sheaths long, striated, smooth. *Stipula (ligula)* short and blunt. *Spikes* 2 or 3 inches long, very dense and uniform, of a lightish-green colour, 2-ranked, brittle. *Florets* 3 together at each joint of the rachis or common stalk, the two outside ones sterile, the intermediate one fertile; the larger palea or valve in all the florets awned. Each *sterile* floret has a calyx of 2 bristle-shaped glumes, one of which (that next to the fertile floret) is fringed at the base, the other rough with small teeth. The *fertile* or *perfect* floret is considerably the largest, and has a calyx of two strap-spear-shaped glumes on the outside of the larger awned palea, both of which are fringed with spreading hairs; this floret has also a third glume, which is very narrow, resembling an awn, placed at the base of the inner palea, not fringed, and shorter than the floret.

Hordeum murinum is distinguished from any other species of the genus by the two glumes of the calyx of the intermediate floret being fringed with spreading hairs.

This Grass is of no agricultural use; Mr. Sinclair says he never could observe it eaten by cattle of any description, not even by the half-starved animals which feed by road-sides, where it is often the most prevalent grass. However, Dr. Withering says that sheep and horses eat it, and that it feeds the Brown Moth *(Phalæna granella)*, and the Barley Fly *(Musca frit)*, the latter very destructive to the barley in Sweden, by getting into the ear; but, according to Kirby and Spence, not yet observed in England. Mr. Knapp observes, that "in some places, *Hordeum murinum* occasionally intrudes in the upland grass-fields, and the hay in such cases is almost rejected by cattle, as the sharp spines that constitute the beard attach themselves to the mouth of the beast, causing irritation and pain, and teeze the animal instead of nourishing him; of this disadvantage we are sensible, of its virtues we remain in ignorance, and though it loves the neighbourhood and association of man, yet it seems in no instance deserving his protection."

The *Squirrel-tail Grass*, which is often so pernicious in the hay in some parts of the Isle of Thanet, is said to be the *Hordeum maritimum*, and not this species.



Ribes rubrum Common currant ♄

Pubd by W. Baxter Botanic Garden Oxford

RIBES*.

Linnean Class and Order. PENTA'NDRIA† MONOGY'NIA.

Natural Order. GROSSULA'CEÆ, *Mirb.*—Lindl. Syn. p. 106; Introd. to Nat. Syst. of Bot. p. 54.—Mack. Fl. Hibern. p. 108.—Loud. Arb. Brit. p. 967.—GROSSULARIE'Æ, *De Cand.*—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 177.—Hook. Brit. Fl. (4th edit.) p. 408.—RIBESIÆ, Rich. by Macgilliv. p. 516.—CACTI, Juss. Gen. Pl. p. 310.—Sm. Gram. of Bot. p. 164.—ROSALES; subord. MYRTOSÆ; sect. GROSSULINÆ; type, GROSSULACEÆ; Burn. Outl. of Bot. v. ii. pp. 614, 617, 740, and 744.—POMACEÆ, *Linn.*

GEN. CHAR. *Calyx* (see fig. 1, *a.*) superior, of 1 sepal, tumid; limb in 5 deep, regular, spreading, coloured segments. *Corolla* (see fig. 1, *b. b.*) of 5, small, obtuse, upright petals, attached to the rim of the calyx, and alternating with its segments. *Filaments* (see fig. 1, *c.* and fig. 3.) 5, short, awl-shaped, upright, from the rim of the calyx, and alternate with the petals. *Anthers* 2-celled, opening lengthwise on the inside; except in the varieties of *R. rubrum*, in which they burst laterally and transversely. *Germen* (see fig. 4.) inferior roundish. *Style* 1, cloven. *Stigma* blunt. *Berry* (see fig. 5.) crowned with the remains of the flower, 1-celled, with 2 lateral, opposite, longitudinal receptacles, the cell filled with pulp. *Seeds* (see fig. 6.) numerous. roundish, slightly compressed, or angular, each coated with mucilaginous pulp, and suspended by a long filiform funiculus. *Albumen* horny, conforming to the seed, white. *Embryo* minute, excentrical, with the *radical* next the hilum.

The 5-cleft *calyx*, bearing the petals and the stamens; the divided *style;* and the 1-celled, many-seeded *berry;* will distinguish this from other genera, with a superior, polypetalous *corolla*, in the same class and order.

Six species British.

RIBES RUBRUM. Red Currant‡. Common Currant. Garnet Berries,

SPEC. CHAR. Without prickles. Clusters smooth. Bracteas shorter than the flowers. Calyx nearly flat, its segments obtuse. Petals inversely heart-shaped.

Engl. Bot. t. 1289.—Woodv. Med. Bot. v. ii. p. 207. t. 74.—Linn. Sp. Pl. p. 290.—Huds. Fl. Angl. (2nd edit.) p. 99.—Willd. Sp. Pl. v. i. pt. II. p. 1153.—Sm. Fl. Brit. v. i. p. 263.; Engl. Fl. v. i. p. 330.—With. (7th ed.) v. ii. p. 333.—Gray's Nat. Arr. v. ii. p. 548.—Lindl. Syn. p. 106.—Hook. Brit. Fl. p. 108.—Macr. Man. Brit. Bot. p. 90.—Lightf. Fl. Scot. v. i. p. 146.—Sibth. Fl. Oxon. p. 84.—Relh. Fl. Cant. (3rd ed.) p. 100.—Purt. Midl. Fl. v. iii. p. 19.—Hook. Fl. Scot. p. 81.—Fl. Devon. pp. 42 & 168.—Winch's Fl. of Northumb. & Durh. p. 16.—Don's Gen. Syst. of Gard. & Bot. v. iii. p. 187.—Loud. Arb. et Frutic. Brit. p. 977.—Walker's

Fig. 1. A Flower; *a.* calyx; *b. b.* two of the Petals; *c.* a Stamen.—Fig. 2. A single Petal.—Fig. 3. A single Stamen.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. A Berry.—Fig. 6. A Seed.—All, except fig. 5, *a little magnified.*

* The name of an acid plant mentioned by the Arabian physicians, which has been discovered to be the *Rheum Ribes*, DON. † See f. 48, n. †.

‡ From the similitude of the fruit to that of the Corinth Grape, the small grape of Zante, or the common grocers' Corinths or currants. MARTYN.

Fl. of Oxf. p. 66.—Perry's Pl. Varv. Selectæ, p. 22.—Bab. Fl. Bath. p. 18.—Irv. Lond. Fl. p. 198.—Mack. Catal. of Pl. of Irel. p. 25; Fl. Hibern. p. 108.—*Ribes vulgaris fructu rubro*, Ray's Syn. p. 456.—Johnson's Gerarde, p. 1593.

Localities.—In mountainous woods, especially in the North of England, and in Scotland.—*Oxfordshire;* Magdalen College Water-Walks: Dr. Sibthorp. Shotover Plantations: W. B.—*Berksh.* In a hedge near Childswell Farm, by the road from S Hinksey; and on pollard willows in Bagley Wood: W. B.—*Cambridgesh.* Linton; between Bourn-bridge and Abington, in an island a little above the Sluice: Rev. R. Relhan.—*Cumberland;* Hedges near Whinside Hill, Ullock Moss, and elsewhere about Keswick, perhaps native: H. C. Watson, Esq. in N. B. G. Eden, in Whinfield Park and Culgaith: N. B. G.—*Devon;* Bagtor Wood, Ilsington; Banks of the river Culm: Rev. W. Hinks. Lizwell Wood, Widdecome in the Moor: Rev. A. Nick. Banks of the river at North Bovey: *Fl. Devon.* Hedges about Barnstable: N. B. G. Woods and hedges near Bampton: Miss Bliss.—*Durham;* Woods and banks of rivulets; in Teesdale, near Eglestone: Rev. J. Harriman.—*Kent;* High and Harrison's Rocks: *Fl. Ton.*—*Leicestersh.* Woods near Stanton: Bobart, in *Ray's Syn.*—*Norfolk;* Not uncommonly naturalized: *Hist. Yarm.* Stow Wood: Miss Bell, in N. B. G.—*Northumbl.* In Hulne Woods, near Alnwick Mr. J. Davison.—*Somerset;* Naturalized in hedges, not unfrequently: C. C. Babington, Esq.—*Warwicksh.* Banks of the Avon near Warwick: Rev. W. T. Bree. Side of the Avon between Warwick and Emscote: Mr. W. G. Perry. In the hedge on the right hand side of the foot-path going from Rugby, between the Mill and Newbold-upon-Avon: 1831, W. B.—*Worcestersh.* In the deep dingle of a wood at Hailstone Hill, near Suckley; also in a ravine at Clifton-on-Teme, between that place and St. Catherine's Well. In the deep glen of a wood at (Lickey ?): E. Lees, Esq. in N. B. G.—*Yorksh.* Banks of the Swale, Richmond: J. Ward, in N. B. G. Mill Island; Birkbeck's Weir; Wood near Clayton's Bridge; and Settle: N. J. Winch, Esq.—SCOTLAND. *Argylesh.* Islay, among brushwood on the banks of the Sound: Lightfoot.—*Berwicksh.* In deans, on the sites of deserted mills and cottages: Dr. Johnstone, in *Fl. Berw.*—*Edinburghsh.* Woods on Corstorphine Hill, and other places, probably sown by birds: H. C. Watson, Esq. in N. B. G.—*Fifesh.* Culross Woods: Mr. Maughan.—*Lanarksh.* Avon banks opposite Barncluith, perfectly wild, and in woods and by sides of rivers: N. B. G.—IRELAND. Naturalized in many parts of the *county of Cork:* Mr. J. T. Mackay.

Shrub.—Flowers in April and May.

Stem bushy, upright, smooth, with a deciduous cuticle. *Leaves* alternate, on long, fringed petioles, bluntly 3- or 5-lobed, doubly serrated, smooth above, somewhat hairy beneath, usually rather downy when young. *Racemes* drooping, simple, stalked. *Bracteas* egg-shaped, small, solitary under each pedicel, often with a pair of small ones near the flower. *Calyx* yellowish-green, cup-shaped, nearly flat, segments blunt. *Petals* very small, inversely heart-shaped, yellowish. *Berries* globular, quite smooth, red and shining, each crowned with the withered flowers.

This species is a native of Europe and Siberia, in woods; and throughout Canada to the mouth of the Mackenzie. In a wild state the berries are red, but cultivation has produced white and pale red berries. Merrett, in his *Pinax*, (1666,) mentions a small-fruited variety as growing at Wimbleton in *Surrey*, and many places of *Lancashire*. It is said also (see *Ray's Syn.*) to have been found since, plentifully, in Wimbleton Park, by Mr. J. Sherard. In the 4th edit. of the *Brit. Flora*, Sir W. J. Hooker has united *R. petræum*, and *R. spicatum*, with this species.

The fruit, when cultivated, is much esteemed for dessert, and for making tarts, wine, preserves, &c. According to Withering, the juice forms an agreeable acid to punch. If equal weights of picked currants and pure sugar be put over the fire, the liquor that separates spontaneously is a most agreeable jelly. The Medicinal qualities of red currants are similar to those of other subacid fruits, allaying thirst, lessening an increased secretion of the bile, and correcting a putrid and scorbutic state of the fluids.

Dothidea ribesia, Pers.; *Sphæria cinnabarina*, Tode.; and *Sp. coronata*; Hoffm.; are parasitical on dead branches of currant trees about Oxford. The two former very common, the latter rather rare.

The *Natural Order*, Grossulaceæ, consists only of *Ribes*, consequently the characters of the *Order* are the same as those of the



Clinopodium Vulgare Wild Basil 2

J. Mathews. del. et sc. Pub.d by W. Baxter, Botanic Garden, Oxford 1839

CLINOPO'DIUM *.

Linnean Class and Order. DIDYNA'MIA †, GYMNOSPE'RMIA ‡.

Natural Order. LABIA'TÆ §, Juss. Gen. Pl. p. 110.—Sm. Gram. of Bot. p. 99.; Engl. Fl. v. iii. p. 63.—Bentham, in Bot. Regist. (1829).—Lindl. Syn. p. 196.; Introd. to Nat. Syst. of Bot. p. 239.—Rich. by Macgilliv. p. 439.—Loud. Hort. Brit. p. 528.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 665.—Mack Fl. Hibern. p 209.—VERTICILLATÆ of *Linnæus.*—SYRINGALES; subord. PRIMULOSÆ; sect. MENTHINÆ; type, MENTHACEÆ or LABIATÆ; subtype, NEPETIDÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 968 & 973.

GEN. CHAR. *Whorls* many-flowered, with numerous strap-shaped *bracteas* (see fig. 1.), forming a sort of *involucrum*. *Calyx* (see fig. 1.) of 1 sepal, inferior, tubular, 13-nerved, nearly equal at the base, often curved, 2-lipped; upper lip broadest, ascending, in 3 deep, pointed, equal segments; lower lip incurved, in 2 deep, slender segments; throat closed with converging hairs. *Corolla* (fig. 2.) ringent; tube cylindrical, rather short, throat longer and wider; upper lip nearly flat, blunt, slightly notched; lower lip in 3 deep lobes, the middle one very broad, notched. *Filaments* (see fig. 3.) 4, didynamous, all directed to the upper lip, cylindrical, converging, shorter than the corolla. *Anthers* (see figs. 2 & 3.) 2-lobed, each pair meeting so as to form a cross. *Germen* (see fig. 4.) 4-lobed, small. *Style* (fig. 4.) thread-shaped, equal to the stamens. *Stigma* in 2 pointed lobes. *Seeds* 4, egg-shaped, in the bottom of the closed tumid calyx.

The 2-lipped, many-ribbed *calyx;* and the *flowers* with numerous strap-shaped bracteas; will distinguish this from other genera in the same class and order.

One species British.

CLINOPO'DIUM VULGARE. Common Wild Basil. Stone Basil. Basil-Weed.

SPEC. CHAR. Leaves egg-shaped, obscurely serrated. Whorls hairy. Bracteas bristle-shaped. Pedicels branched.

Engl. Bot. t. 1401.—Linn. Sp. Pl. p. 821.—Huds. Fl. Angl. (2nd ed.) p. 261.—Willd. Sp. Pl. v. iii. pt. 1. p. 131.—Sm. Fl. Brit. v. ii. p. 638.; Engl. Fl. v. iii. p. 105.—With. (7th edit.) v. iii. p. 718.—Gray's Nat. Arr. v. ii. p. 385.—Lindl. Syn. p. 206.—Hook. Brit. Fl. p. 280.—Lightf. Fl. Scot. v. ii. p. 316.—Sibth. Fl. Oxon. p. 188.—Abbot's Fl. Bedf. p. 132.—Davies' Welsh Bot. p. 58.—Purt. Midl. Fl. v. i. p. 282.—Relh. Fl. Cant. (3rd ed.) p. 245.—Hook. Fl. Scot p. 184.—Grev. Fl. Edin. p. 133.—Fl. Devon. pp. 100 & 146.—Johnst. Fl. Berw. v. i. p. 134.—Winch's Fl. of Northumbl. and Durh. p. 40.—Walker's Fl. of Oxf. p. 170.—Jacob's West Devon. and Cornwall Flora.—Bab. Fl. Bath. p. 40.—Dick. Fl. Abred. p. 44.—Irv. Lond. Fl. p. 134.—Luxf. Reig. Fl. p. 53.—Cow. Fl. Guide, p. 27.—Mack. Catal Pl. Irel. p. 56.; Fl. Hibern. p. 220.—*Clinopodium origano simile*, Ray's Syn. p. 239.—*Melissa clinopodium*, Benth. Lab. p. 392. *fide* DON.—Lindl. Syn. (2nd edit.) p. 202.—Don's Gen Syst. of Gard. and Bot. v. iv. p. 783.—Mac. Man. Brit. Bot. p. 132.—*Acynos*, Johns. Gerarde, p. 675.

Fig. 1. Calyx, subtended by 3 bracteas.—Fig. 2. Corolla.—Fig. 3 Stamens and Pistil, with the upper lip of the corolla.—Fig. 4. Germen, Style, and 2-lobed Stigma.

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* From *kline*, Gr. a *couch;* and *podeon*, Gr. a *little foot;* the flowers growing in whorls, one above another, like the old-fashioned turned feet of bedsteads. WITHERING.

† See folio 31, note †. ‡ Ibid. note ‡. § See folio 94, *a*

Localities.—In dry pastures, about hedges, and by road-sides, on a gravell or chalky soil; not uncommon.

Perennial.—Flowers in August.

Root fibrous. *Stems* several, ascending, from 1 to 2 feet high, somewhat wavy, 4-angled, clothed all over, as is every other part of the plant, with long spreading hairs. *Leaves* opposite, on shortish petioles, egg-shaped, bluntish, about an inch long, with a few shallow serratures; very regularly and distinctly veined, the ribs on the under surface rather prominent, and clothed with copious bristly hairs. *Whorls* few, equal, globose, of many, usually more than forty, light purple, not unhandsome flowers, on forked, or branched, hairy pedicels, accompanied by narrow, awl-shaped, hairy *bracteas* (see fig. 1.); one of the whorls always terminating the stems and branches. *Calyx* 13-nerved, very hairy, 2-lipped, the lower lip of 2 teeth. *Corolla* prominent, twice as long as the calyx, of a purplish-red colour, with a yellow hairy protuberance at each side of its mouth; the middle lobe of the lower lip very broad, and notched.

The smell of the plant is somewhat aromatic, and not unpleasant. It is of no particular use. Goats and sheep will eat it; horses refuse it.

This species is said to be native throughout Europe and Middle Asia, in woods, hedges, and waysides; from Scotland and Sweden to Spain, Sicily, Greece, and Caucasus; and North America; but probably introduced from Europe to the latter country.

"Go forth," says an elegant writer in *The Amulet*, for 1832, p. 154.—"Go forth into the fields and among the green hedges; walk abroad into the meadows, and ramble over heaths; climb the steep mountains, and dive into the deep valleys; scramble among the bristly thickets, or totter among the perpendicular precipices; and what will you find there? Flowers—flowers—flowers! What can they want there? What can they do there? How did they get there? What are they but the manifestation that the Creator of the Universe is a more glorious and benevolent Being than political economists, utilitarians, philosophers, and *id genus omne?*

"Flowers—of all things created most innocently simple and most superbly complex; playthings for childhood, ornaments of the grave, and companinns of the cold corpse in the coffin! Flowers—beloved by the wandering idiot, and studied by the deep-thinking man of science! Flowers—that of perishing things are most perishing, yet of all earthly things are the most heavenly! Flowers—that, in the simplicity of their frailty, seem to beg leave to be, and that occupy, with blushing modesty, the clefts, and corners, and spare nooks of earth, shrinking from the many-trodden path, and not encroaching on the walks of man; retiring from the multitudinous city, and only then, when man has deserted the habitation he has raised, silently, and as if long waiting for implied permission, creeping over the grey wall and making ruin beautiful! Flowers—that unceasingly expand to heaven their grateful, and to man, their cheerful looks: partners of human joy, soothers of human sorrow; fit emblems of the victor's triumphs, of the young bride's blushes; welcome to crowded halls and graceful upon solitary graves! Flowers—that, by the unchangeableness of their beauty, bring back the past with delightful and living intensity of recollection! Flowers—over which innocence sheds the tear of joy; and penitence heaves the sigh of regret, thinking of the innocence that has been! Flowers are for the young and for the old; for the grave and for the gay; for the living and for the dead; for all but the guilty, and for them when they are penitent. Flowers are, in the volume of nature, what the expression, 'God is love,' is in the volume of revelation. They tell man of the paternal character of the Deity."



Torilis Anthriscus Upright Hedge-Parsley ⊙

C. Mathews. Del. & Sc. Pub.d by W. Baxter Botanic Gardn. Oxford. 1834

TORI'LIS *.

Linnean Class and Order. PENTA'NDRIA † DIGY'NIA.

Natural Order. UMBELLI'FERÆ ‡, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.—Lindl. Syn. p. 111.; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—UMBELLATÆ, *Linn.*—ROSALES; sect. ANGELICINÆ; type, ANGELICACEÆ; subtype, CAUCALIDÆ; Burn. Outl. of Bot. v. ii. pp. 614, 770, 773, & 781.

GEN. CHAR. *Flowers* all perfect and fertile, except from occasional abortion, slightly irregular. *Calyx* (see fig. 2.) superior, of 5, triangular-spear-shaped, pointed, nearly equal, permanent teeth. *Corolla* (see fig. 1.) superior, of 5, inversely heart-shaped petals, with an inflexed point; outer ones of the umbellules larger than the central ones, and bifid. *Filaments* (see fig. 1.) 5, hair-like, spreading, longer or shorter than the corolla. *Anthers* roundish. *Germen* (see fig. 2.) inferior, egg-shaped, bristly. *Floral Receptacle* scarcely perceptible. *Styles* (see figs. 2 & 3.) 2, awl-shaped, somewhat spreading, much shorter than the corolla, permanent, and subsequently elongated, very tumid at the base. *Stigmas* simple. *Fruit* (see fig. 3.) contracted at the sides. *Carpels* (*Mericarps*, DON, *Seeds*, LINN.) with 3 dorsal bristly ribs, and 2 in the inner face of the carpels (see fig. 4.); the interstices clothed with prickles, and having one *vitta* under each secondary rib below the prickles. *Seed* inflexed at the margin. *Involucrum* variable; the *partial one (involucellum)* many-leaved. *Flowers* white or pink.

The egg-shaped, beakless, somewhat laterally compressed, bristly *fruit;* the *carpels* with 3 dorsal bristly ribs, and 2 in the inner face of the carpels; and the secondary ribs beset with copious prickles, which occupy the whole furrows, having one *vitta* under each secondary rib below the prickles; will distinguish this from other genera in the same class and order.

Three species British.

TORI'LIS ANTHRI'SCUS. Upright Hedge-Parsley. Red Hedge-Parsley.

SPEC. CHAR. Stem upright, branched. Leaves bipinnate; leaflets oblong, deeply cut and serrated. Umbels terminal, of from 5 to 10 close rays. Involucrums of several small awl-shaped leaves. Fruit covered with incurved bristles.

Gært. v. i. p. 83.—Sm. Engl. Fl. v. ii. p. 43.—With. (7th edit.) v. ii. p. 366.—Lind. Syn. p. 114.—Hook. Brit. Fl. p. 115.—Macr. Man. Brit. Bot. p. 105.—Grev. Fl. Edin. p. 70.—Fl. Devon. pp. 47 & 165.—Johnst. Fl. Berw. v. i. p. 67.—Winch's Fl. of Northumb. and Durh. p. 18.—Walker's Fl. of Oxf. p. 75.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 361.—Bab. Fl. Bath. p. 19.—Dick. Fl. Abred. p. 31.—Irv. Lond. Fl. p. 195.—Luxf. Reig. Fl. p. 26.—Cow. Fl. Guide, p. 51.—Mack. Fl. Hibern. p. 114.—*Torilis rubella*, Gray's Nat. Arr. v. ii. p. 499.—*Caucalis Anthriscus*, Engl. Bot. t. 987.—Curt. Fl. Lond. t. .—Huds. Fl. Angl. (2nd ed.)

Fig. 1. A Flower.—Fig. 2. Germen.—Fig. 3. Fruit.—Fig. 4. A Carpel divided transversely.—*All, more or less, magnified.*

* Name of doubtful origin, perhaps, as SMITH suggests, from *toreuo*, Gr. to *carve* or *emboss;* in allusion to the appearance of the fruit. HOOKER.

† See folio 48, note †. ‡ See folio 235, *a*.

p. 114.—Willd. Sp. Pl. pt. II. p. 1388.—Sm. Fl. Brit. v. i. p. 298.—Lightf. Fl. Scot. v. i. p. 155.—Sibth. Fl. Oxon. p. 93.—Abbot's Fl. Bedf. p. 59.—Davies' Welsh Bot. p. 27.—Purt. Midl. Fl. v. i. p. 145.—Relh. Fl. Cant. (3rd ed.) p. 112.—Hook. Fl. Scot. p. 87.—Mack. Catal. Pl. Irel. p. 27.—*Caucalis minor, Flosculis rubentibus*, Johns. Ger. p. 1022.—Ray's Syn. p. 219.—*Tordylium Anthriscus*, Linn. Sp. Pl. p. 346.—Jacq. Fl. Austr. v. iii. t. 261.

LOCALITIES.—In hedges, banks by road-sides, and on the borders of fields. Very common.

Annual.—Flowers in July and August.

Root slender, tapering, fibrous. *Stem* from 2 to 4 feet, or more, high, upright, stiff, solid, round, striated, a little crooked, purplish, rough with minute, rigid bristles, which are pressed downwards to the stem, and scarcely visible. *Branches* alternate, nearly upright. *Leaves* alternate, on channelled, somewhat sheathing petioles, twice pinnate; leaflets pinnatifid, sharply cut, and rough with very minute hairs; the terminal leaflet of the upper leaves very long, strap-spear-shaped. *Umbels* lateral and terminal, on long upright stalks, of from 7 to 10 rough rays, but little spreading; the bristles on these, on the involucrums, and on the leaves, are pressed upwards, contrary to those on the stem and branches. *Umbellules* close and flat. *General* and *Partial Involucrums* of several small, awl-shaped leaves, often pressed close to the rays, and then not readily perceptible. *Flowers* small, mostly of a pinkish colour, sometimes white. *Calyx* teeth nearly equal, smooth. *Petals* unequal, inversely heart-shaped. *Fruit* small, egg-shaped, faintly tinged with purple, very rough with incurved bristles, placed in rows, between which are 3 dark green, rather prominent ribs.

This plant is a common weed in hedges and on borders of fields in most other parts of Europe, as well as in Britain; and also in Caucasus, in similar situations.

Dr. WITHERING says, horses are extremely fond of it.—The upright stem, and compound umbels, of this species, will distinguish it from *Torilis nodosa;* and the general involucrum of more than two leaves, from *T. infesta;* the latter species is chiefly found among corn, never in hedges; *T. Anthriscus* seldom anywhere but in hedges and among bushes.

HEDGE BLOSSOMS.

" When my path led through gardens of myrtles and roses,
And rich flowers of every hue,
How I lov'd the green lane, where fair nature discloses
Her charms wildest, where *Hedge Blossoms* blew.

Oh! how tame seem'd each beauty—how languid the culture
Of the loveliest flower that grew,
Oh! how poor seem'd each scent—unrefreshing the verdure,
To the fragrance the *Hedge Blossom* threw!

As the years roll'd away, when vicissitude's sickle,
And the rough blast of baneful mildew
Had swept over the garden; and destiny fickle
Left the vale, where BUT *Hedge Blossoms* blew!

Wav'ring Fancy aroused, stole the feature of sadness,
(As the Sun steals dawn's moment of dew)
From the valley—and with a dark shadow of sadness
Hung the wild, where the *Hedge Blossom* blew!"

M. K. HART.



Bromus mollis. Soft Brome-grass ♂

Published by W. Baxter Botanic Garden Oxford 1838

BRO'MUS *.

Linnean Class and Order. TRIA'NDRIA †, DIGY'NIA.

Natural Order. GRAMI'NEÆ, Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71.—Lind. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. Hibern. p. 294.—Hook. Brit. Fl. (4th edit.) p. 426.—GRAMINA, *Linn.*—GRAMINALES; sect. FESTUCINÆ; type, AVENACEÆ, Burn. Outl. of Bot. v. i. pp. 359 and 369.

GEN. CHAR. *Panicle* loose. *Spikelets* (see fig. 2.) egg-shaped, or oblong, compressed, of many alternate, imbricated, 2-ranked, awned, perfect florets. *Calyx* (fig. 1.) of 2 unequal, egg-shaped, or spear-shaped, pointed, concave *glumes*, shorter than the lower florets. *Corolla* (fig. 3.) of 2 unequal *paleæ (valves)*; the outer elliptical, rarely spear-shaped, concave, scarcely compressed, more or less ribbed, longer than the calyx, flat, or a little inflexed, at the edges; cloven at the summit; awned at the back just below the summit; awn tapering, wavy, direct, generally as long as the palea, or longer, decurrent at the base; inner palea nearly as long as the outer, but narrower, 2-ribbed, cloven or entire at the summit, its margins membranous, folded in at each rib, which is strongly fringed with rather distant bristles, curved upwards. *Nectary* (fig. 4.) a deeply divided scale, or of 2 distinct entire ones. *Filaments* (see fig. 3.) 3, hair-like, shorter than the corolla, sometimes but two. *Anthers* generally short, pendulous, notched at each end. *Germen* (see fig. 5) egg-shaped. *Styles* (see fig. 5.) distant, lateral. *Stigmas* (see fig. 5.) densely feathery. *Seed* (fig. 6.) elliptic-oblong, depressed, downy at the summit, concave or channelled on the upper side, which is united to the unchanged inner palea of the corolla, the other palea being usually loose.

The loose *panicle*; the *calyx* of 2 valves, containing many florets; and the *corolla* of 2 elliptical *paleæ*, the *outer* one awned below the bifid extremity; will distinguish this from other genera in the same class and order.

Twelve species British.

BRO'MUS MOLLIS. Soft Brome-grass. Lob-grass. Oat-grass.

SPEC. CHAR. Panicle upright, close, compound. Spikelets egg-shaped, somewhat compressed. Florets imbricated, compressed, pubescent. Awns straight, as long as the paleæ. Leaves and Sheaths very soft and downy.

Fig. 1 Calyx.—Fig. 2. A Spikelet; *a. a.* the 2 glumes of the Calyx.—Fig. 3. A Floret, showing the 2 Paleæ, the Stamens, and the Pistils.—Fig. 4. Nectary.—Fig. 5. Germen, Styles, and Stigmas.—Fig. 6. A Seed.

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* From *Bromos*, Gr. a name given by the Greeks to a kind of *oat*; and that again from *Broma*, Gr. *food*. HOOKER.

Engl. Bot. t. 1978.—Curt. Fl. Lond. t. .—Knapp's Gram. Brit. t. 77.—Mart. Fl. Rust. t. 99.—Host. Gram. Austr. v. i. p. 16. t. 19.—Grave's Monogr. on Brit. Grasses, t. 94.—Sinel. Hort. Gram. Wob. pp. 24 & 176, with a plate.—Schreb. Gram. v. i. p. 60. t. 6. f. 1 & 2.—Leers' Fl. Herb. p. 37. t. 11. f. 1.—Linn. Sp. Pl. p. 112.—Sm. in Trans. of Linn. Soc. v. iv. p. 284.—Willd. Sp. Pl. v. i. pt. 1. p. 429.—Sm. Fl. Brit. v. i. p. 126; Engl. Fl. v. i. p. 153.—With. (7th edit.) v. ii. p. 187.—Gray's Nat. Arr. v. ii. p. 119.—Lindl. Syn. p. 311.—Hook. Brit. Fl. p. 49.—Macr. Man. Brit Bot. p. 273.—Lightf. Fl. Scot. v. i. p. 103.—Sibth. Fl. Oxon. p. 47.—Abbot's Fl. Bedf. p. 23.—Davies' Welsh Bot. p. 11.—Purt. Midl. Fl. v. i. p. 77.—Relh. Fl. Cant. (3rd ed.) p. 42.—Curt. on Brit. Grasses, (5th ed.) p. 21.—Salish. Bot. Comp. v. ii. p. 5.—Hook. Fl. Scot. p. 41.—Grev. Fl. Edin. p. 28.—Fl. Devon. pp. 21 & 126.—Johnst. Fl. Berw. v. i. p. 27.—Winch's Fl. of Northumb. and Durh. p. 7.—Loudon's Mag. Nat. Hist. v. i. p. 382, with a figure.—Walker's Fl. of Oxf. p. 28.—Bab. Fl. Bath. p. 58.—Murr. North. Fl. p. 75.—Dick. Fl. Abred. p. 24.—Irv. Lond. Fl. p. 99.—Luxf. Reig. Fl. p. 9.—Cow. Fl. Guide, p. 24.—Mack. Catal. of Pl. Irel. p. 15.; Fl. Hibern. p. 311.—*Bromus polymorphus*, var. *α*. Huds. Fl. Angl. (2nd edit.) p. 48.—*B. hordeaceus*, Linn. Sp. Pl. (1st edit.) p. 77.—*Festuca avenacea hirsuta, paniculis minus sparsis*, Ray's Syn. p. 413.

Localities.—In meadows, pastures, and fields, everywhere, as well as on waste ground, walls, and banks.

Biennial.—Flowers in June.

Root fibrous, branched and whitish. *Culm* upright, simple, striated, mostly smooth, with downy knots or joints, two feet or more high, in good ground, much more dwarf, scarcely 2 or 3 inches, in dry barren places *. *Leaves* and *Sheaths* very soft to the touch, hoary with fine short, dense hairs. *Ligula (stipula)* short, blunt, somewhat torn. *Panicle* 2 or 3 inches long, hoary and downy all over, a little spreading when in full flower, but otherwise upright and close; its branches half-whorled; the uppermost simple; some of the rest more or less subdivided; all angular and downy. *Spikelets* nearly upright, egg-shaped, pointed, a little compressed. *Calyx* downy, its *glumes* elliptical, pointed; the larger with 5 or 7 strong ribs, sometimes more; the smaller with three. *Florets* from 7 to 10, seldom fewer, downy, closely imbricated in every state, elliptical, concave and depressed, not at all cylindrical; the outer palea with 7 strong ribs, membranous at the margin, blunt and deeply cloven at the extremity, with a strong straight *awn* continued from the midrib, and about the length of the palea; inner palea very thin, and much narrower, entire, and strongly fringed. *Styles* distant. *Seed* large, oblong, flattened, united with both the paleæ.

This species of *Bromus* is very common in many of our rich meadows, but being an early grass it has generally shed its seed before the usual time of mowing, and as it produces but few root leaves, its crop of herbage is, consequently, very small, and of little value.

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* In this state it is the *Bromus nanus* of Weigel, *Observ. Bot.* p. 8. t. 1. f. 9. I have specimens of this variety, which I received, about four years ago, from the Rev. J. Jacob, LL. D. Author of the "Flora of West Devon and Cornwall," which are only two inches and a half high. In these specimens the culm, above the leaves, is strongly striated, and densely covered with deflexed hairs.



Utricularia vulgaris. Greater Bladderwort 4

G. Mathews del & lt. Pub.d by W. Baxter Botanic Garden Oxford 1833

UTRICULA'RIA*.

Linnean Class and Order. DIA'NDRIA†, MONOGY'NIA.

Natural Order. LENTIBULA'RIÆ, *Rich.*—Lindl. Syn. p. 186.; Introd. to Nat. Syst. of Bot. p. 226.—Rich. by Macgilliv. p. 432.—Loud. Hort. Brit. p. 529.—Mack. Fl. Hibern. p. 196.—Hook. Brit. Fl. (4th ed.) p. 415.—LYSIMACHIÆ, sect. 3. Juss. Gen. Pl. pp. 95 and 97.—Sm. Gr. of Bot. p. 95.—SYRINGALES; subord. PRIMULOSÆ; sect. MENTHINÆ; type, UTRICULARIACEÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, & 976.—CORYDALES, *Linn.*

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 2, small, egg-shaped, equal, permanent sepals. *Corolla* (fig. 2.) of 1 petal, ringent; upper lip blunt, upright; lower larger, with a prominent, heart-shaped palate; spur (fig. 3.) single or double. *Stamens* (fig. 4.) 2, short, with small, cohering anthers. *Germen* (fig. 5.) globose. *Style* hair-like, the length of the calyx. *Stigma* 2-lipped. *Capsule* (figs. 6 & 7.) globose, of 1 cell. *Seeds* (figs. 8 & 9.) numerous, small, on a large, globular, central *receptacle.*

The *calyx* of 2 sepals; the inferior, monopetalous, personate, spurred *corolla;* and the 1-celled *capsule;* will distinguish this from other genera in the same class and order.

Three species British.

UTRICULA'RIA VULGA'RIS. Common Bladder-wort. Hooded Milfoil.

SPEC. CHAR. Spur conical. Scape straight. Cluster somewhat corymbose; upper lip of the corolla as long as the projecting palate. Leaves pinnato-multifid.

Engl. Bot. t. 253.—Fl. Dan. t. 138.—Linn. Sp. Pl. p. 26,—Huds. Fl. Angl. (2nd ed.) p. 8.—Willd. Sp. Pl. v. i. pt. 1. p. 112.—Sm. Fl. Brit. v. i. p. 28; Engl. Fl. v. i. p. 30.—With. (7th edit.) v. ii. p. 23.—Gray's Nat. Arr. v. ii. p. 316.—Lindl. Syn. p. 186.—Hooker's British Fl. p. 9.—Macr. Man. British Botany, p. 188.—Lightf. Fl. Scot. v. i. p. 77.—Sibthorp's Fl. Oxon. p. 7.—Abbot's Fl. Bedf. p. 5.—Annals of Botany, v. i. p. 138.; and v. ii. p. 391.—Davies' Welsh Bot. p. 4.—Purt. Midl. Fl. v. i. p. 55.—Relh. Fl. Cant. (3rd edit.) p. 12.—Hook. Fl. Scot. p. 8.—Grev. Fl. Edin. p. 5.—Fl. Devon. pp. 4 & 142.—Johnston's Fl. of Berw. v. i. p. 8.—Winch's Fl. of Northumb. and Durh. p. 2.—Rev. G. E. Smith's Plants of S. Kent, p. 2.—Walker's Fl. of Oxf. p. 7.—Burn. Outl. of Bot. v. ii. p. 977, with a figure.—Perry's Pl. Varv. Sclectæ, p. 3.—Mur. North. Fl. p. 18.—Dick. Fl. Abred. p. 20.—Irv. Lond. Fl. p. 131.—Mack. Catal. Pl. Irel. p. 9.; Fl. Hibern. p. 197.—*Lentibularia*, Ray's Syn. p. *286.

LOCALITIES —In deep pools, and watery ditches; frequent.—*Oxfordshire;* Ditch near the Canal, opposite the first draw-bridge beyond Heyfield's Hut: W. B. Otmoor: Dr. SIBTHORP. Between Bainton and Burford: Rev. W. S. RUFFORD.—*Berks;* In a ditch on the north side of the road just beyond Botley Bridge; ditches near the towing-path between Oxford and Iffley; also by the sides of the Devil's Back-bone going to South Hinksey; and in the pools on the south side of the Abingdon road, opposite the Paper-mill, just before you come to the road leading to Kennington; Sept. 1839: W. B.—*Beds.* Ditch in Bromham Parish: Rev. C. ABBOT.—*Cambridgesh.* Paper-mills; Teversham Moor; Triplow Heath; Ely, &c.: Rev. R. RELHAN.—*Cheshire;* Ponds in Mobberly:

Fig. 1. Calyx.—Fig. 2. Front view of Corolla.—Fig. 3. The Spur (reversed)—Fig. 4. Stamens.—Fig. 5. Germen, Style, and Stigma.—Fig. 6. Capsule.—Fig. 7. Vertical section of ditto, showing the Receptacle or Placenta.—Figs. 8 & 9. Seeds.—Fig. 10. A separate Leaf.—Fig. 11. One of the Bladders.—Figs. 5, 7, 9, and 11. *a little magnified.*

* From *utriculus*, a *little bladder.*

† See folio 50, note †.

Holland's *Agri. Surv.*—*Cornwall;* Between Rosmarran and Kenegie: Dr. Forbes.—*Derbysh.* Ponds at Swarkeston Bridge: Rev. A. Bloxam.—*Devon.* Bovey Heathfield; the Stover Canal Head; Ponds between Teignbridge and Kingsteignton; and in Powderham Marshes: *Fl. Devon.*—*Durham;* At Hell Kettles; Polam; near Darlington; and in the Lake at Hardwick, near Sedgefield: N. J. Winch, Esq.—*Essex;* In the great Fish-pond at Sir J. Tyrrel's seat called Heron-gate, near Thorndon: Mr. Hill, in Blacks. *Sp. Bot.* (1746.)—*Kent;* Dykes at Ham Ponds; Rev. G. Smith.—*Lancash.* Near Bootle, between Crosby and Formby, near Liverpool: Dr. Bostock. At Penketh: G. Crosfield, Esq.—*Leicestersh.* Ashby Canal, near Congerstone: Rev. A. Bloxam.—*Middlesex;* About Hornsey: *Fl. Metr.*—*Norfolk;* not unfrequent: Mr. Woodward.—*Northumberl.* At Prestwick Carr; N. J. Winch, Esq. In the Pond-field above Spindlestone: Dr. Johnston. In Newham Lough near Bamborough: Miss Pringle.—*Staffordsh.* Near Uttoxeter: G. Howitt, in N. B. G.—*Suffolk;* Not unfrequent: Mr. Woodward.—*Warwicksh.* In shallow water on Birmingham Heath (now drained): Dr. Withering. Canal opposite Mr. Walker's, between Rugby and Newbold-upon-Avon: Rev. A. Bloxam; 1837.—*Yorksh.* In the Great Bog on Blackmoor near Leeds: Mr. Dawson, in Blacks. *Sp. Bot.*—WALES. In Anglesey: Rev. H. Davies.—Frequent in SCOTLAND and IRELAND.

Perennial.—Flowers from June to September.

Root very much branched. *Stems* floating horizontally in the water, cylindrical, frequently a foot or more long, branched, leafy. *Leaves* alternate, thrice pinnatifid, the segments numerous, thread-shaped or bristle-like, fringed at the margin, and, like the roots, bearing small, beautiful, reticulated bladders, which are pear-shaped, but somewhat compressed; with an aperture at the small end, from the edges of which arise three or four very slender fibres (see fig. 11). It is said that these bladders are at first filled with water, by which means the plant is kept at the bottom, until it is ready to flower, when the water gives place to air, and the plant rises to the surface, so that the flowers may unfold in the open air; but when the time of flowering is over, and the seeds are approaching to perfection, the bladders become again filled with water, the whole plant sinks to the bottom, and the seeds are thus sown in their most fitting soil. *Scape* upright, rising 5 or 6 inches above the surface of the water, and bearing from 4 to 8 flowers, with a small, spear-shaped bractea at the base of each peduncle. *Calyx* permanent. *Corolla* large, bright yellow, with purplish-red streaks; the palate projecting and closing the mouth. *Spur* bent downwards. The shoots are frequently terminated by *gemmæ* or buds, of the size of a pea to that of an hazel-nut, and having the appearance of a roundish mass of short hair or wool. This is now the case in most of the plants of this species, in the aquarium of the Oxford Garden. (October 15, 1839.)

The *Natural Order*, Lentibulariæ, is composed of small, *herbaceous, marsh plants*, with undivided and all radical leaves; or *aquatic plants* with compound root-like leaves bearing bladders. The *calyx* is permanent and divided. The *corolla* monopetalous, irregular, 2-lipped, with a spur. The *stamens*, which are 2 in number, are inserted into the base of the corolla. The *anthers* are single. The *ovary* 1-celled. The *style* short. The *stigma* 2-lipped. And the *capsule* 1-celled, with a large central receptacle, bearing many *seeds*, which are very minute, and have no *albumen*.

The only British genera in this order are *Pinguicula*, t. 109. and *Utricularia*, t. 349.



Potamogeton natans Broad leaved Pond weed 1

C. Mathews Del. & Sc.

Pub.d by W. Baxter Botanic Garden Oxford 1839

POTAMOGE'TON *.

Linnean Class and Order. TETRA'NDRIA †, TETRAGY'NIA.

Natural Order. FLUVIA'LES, *Vent.*—Lindl. Syn. p. 248.; Intr. to Nat. Syst. of Bot. p. 289.—Loud. Hort. Brit. p. 541.—Mack. Fl. Hibern. p. 264.—NAIADES, Juss. Gen. Pl. p. 18.—Sm. Gram. of Bot. p. 66.—Rich. by Macgilliv. p. 387.—Hook. Brit. Fl. (4th ed.) p. 423.—INUNDATÆ, *Linn.*—ALISMACEÆ, *De Cand.*—JUNCALES; sect. NAYADINÆ; type, NAYADACEÆ; Burn. Outl. of Bot. v. i. pp. 403 & 413.

GEN. CHAR. *Calyx* none. *Corolla* (fig. 1.) inferior, of 4 concave, equal, incurved, deciduous petals, with claws about as long as their limb. *Filaments* (see figs. 2 & 3.) 4, sometimes more, flat, very short. *Anthers* (see figs. 2 & 3,) nearly sessile, oblong, 2-lobed. *Germens* (see fig. 4.) 4, alternate with the stamens. *Styles* generally none. *Stigmas* blunt, permanent. *Seeds* (see fig. 5.) 4, naked, roundish, tumid at the back; compressed or angular at the inner margin. *Embryo* (fig. 6.) curved. *Flowers* sessile upon a *spike* or *spadix*, which issues from a sheathing *bractea* or *spatha*. Floating *plants*, with pellucid *leaves*.

The single *perianth;* and the 4 sessile, naked *seeds;* will distinguish this from other genera in the same class and order.

Fourteen species British.

POTAMOGE'TON NA'TANS. Floating Pond-weed. Broad-leaved Pond-weed. Sharp-fruited Pond-weed.

SPEC. CHAR. Lower leaves strap-shaped, membranous, or wanting; upper ones elliptical, roundish heart-shaped at the base, leathery, floating; all on long stalks, many-nerved, and distinctly cellular. Fruit keeled.

Engl. Bot. t. 1822.—Fl. Dan. t. 1025.—Linn. Sp. Pl. p. 182.—Huds. Fl. Angl. (2nd edit.) p. 74.—Willd. Sp. Pl. v. i. pt. 1. p. 712.—Sm. Fl. Brit. v. i. p. 193.; Engl. Fl. v. i. p. 228.—With. (7th ed.) v. ii. p. 255.—Lindl. Syn. p. 250.—Hook. Brit. Fl. p. 76.—Macr. Man. Brit. Bot. pp. 223 & 224.—Lightf. Fl. Scot. v. i. p. 121.—Sibth. Fl. Oxon. p. 61.—Abbot's Fl. Bedf. p. 37.—Davies' Welsh Bot. p. 17.—Purt. Midl. Fl. v. i. p. 104.—Relh. Fl. Cant. (3rd edit.) p. 67.—Hook. Fl. Scot. p. 57.—Grev. Fl. Edin. p. 40.—Fl. Devon. pp. 30 & 113.—Johnston's Fl. of Berw. v. i. p. 41.—Winch's Fl. of Northumb. and Durh. p. 10.—Walker's Fl. of Oxf. p. 43.—Bab. Fl. Bath. p. 47.—Murr. North. Fl. p. 105.—Dick. Fl. Abred. p. 27.—Irv. Lond. Fl. p. 85.—Luxf. Reig. Fl. p. 15.—Mack. Catal. Pl. Irel. p. 19.; Fl. Hibern. p. 267.—*Potamogiton natans*, Gray's Nat. Arr. v. ii. p. 33.—*Potamogiton rotundifolium*, Ray's Syn. p. 148.—*Potamogeiton latifolium*, Johnson's Gerarde, p. 821.

LOCALITIES.—In watery ditches, ponds, and slow rivers; common.

Perennial.—Flowers in July and August.

Fig. 1. A single Flower.—Fig. 2. Stamens and Pistils.—Fig. 3. A separate Stamen.—Fig. 4. Germens and Pistils.—Fig. 5. Fruit or Seed.—Fig. 6. Embryo.

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* From *potamos*, Gr. *a river;* and *geiton*, Gr. *a neighbour*. All the species grow in water; and often present as beautiful an appearance in clear streams and ponds, as the *Fuci* do in the ocean. They protect the spawn of fish, and harbour innumerable aquatic insects, their roots and seeds affording food to water birds. Sir W. J. HOOKER.—CHAMISSO and SCHLECHTENDAL have well illustrated this genus; see *Linnæa*, v. ii. p. 159.

† See folio 16, note †.

Root creeping extensively in the mud. *Stems* cylindrical, varying in length, often many feet, much branched, leafy. *Upper leaves* opaque, leathery, smooth, deep green or tinged with brown, 2 or 3 inches long, elliptical, often heart-shaped at the base, with about 7 main ribs, and several intermediate smaller ones; floating on the surface of the water like those of the water-lilies; involute in the bud. *Lower leaves* submersed, alternate, strap-shaped, acute, very narrow, tapering gradually into a footstalk (petiole); these submersed leaves are frequently wholly wanting. *Petioles (footstalks)* of the floating leaves various in length, semicylindrical, very vascular. *Stipulas* (see section at the bottom of the plate) intrafoliaceous, large, spear-shaped, pointed, concave, pale and membranous, nearly as long as the petioles. *Spikes* simple, raised an inch or two above the water, each on a long, thick, axillary stalk, which is suddenly contracted at the bottom of the spike. *Flowers* a little distant, quite sessile, rather numerous, vertical, olive-green. *Anthers* yellow, with whitish *pollen*.

The leaves floating upon the surface of the water afford an agreeable shade to fish, and are the habitation and food of *Phalæna Potamogata*. The roots are sometimes eaten in the wilds of Siberia by men, but in more temperate regions they are fed on only by swans, who devour them with avidity. Mr. STACKHOUSE says, their love of this plant is such, that a pair of them, by harassing it in search of its succulent roots during winter, almost destroyed it in the whole extent of nearly five acres of water, which at times had been completely matted over with it.

LINNÆUS remarks, that when this species grows in water which is dried up in Summer, it surprisingly changes its appearance, becoming upright, and resembling a small *Plantago*. In this variety the stem is said to be but about four inches high. The sheaths of the peduncles and petioles less than half the length of their respective stalks. The leaves alternate, except the upper pair; the lower ones spear-shaped, on long petioles; and the upper ones oval, with shorter petioles. It flowers a month or six weeks earlier than the common plant.

The *Natural Order*, FLUVIALES, to which the present genus belongs, consists of monocotyledonous *water plants*, whose leaves are very vascular, with parallel veins. Their *flowers* are inconspicuous, perfect or monœcious; and usually arranged in terminal *spikes*. The *perianthium* is composed of 2 or 4 pieces, often deciduous, rarely wanting. The *stamens* are definite, and hypogynous. The *ovaries* 1 or more, superior; with a simple *stigma;* and a solitary, pendulous *ovule*. The *fruit* is dry, 1-celled, 1-seeded, and indehiscent. The *seed* is pendulous; and the *embryo* without *albumen*, having a contrary direction to the seed, with a lateral cleft for the emission of the *plumule*.

This order contains the following British Genera. 1. *Potamogeton*, t. 350.—2. *Zostera*.—3. *Ruppia*.—4. *Zannichellia*, t. 164.



Iberis amara. Bitter Candy-tuft. ⊙

C. Matthews Del & Sc. Publd by W. Baxter, Botanic Garden, Oxford, 1830.

IBE'RIS *.

Linnean Class and Order. TETRADYNA'MIA †, SILICULO'SA ‡.

Natural Order. CRUCI'FERÆ §, Juss. Gen. Pl. p. 237.—Sm. Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv. p. 498.—CRUCIFERÆ; subord. PLEURORHIZEÆ ‖; tribe, THLASPIDEÆ; Lindl. Syn. pp. 20, 22, & 27.; Introd to Nat. Syst. of Bot. pp. 14 to 18.—Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist. v. i. pp. 143 & 240.—Don's Gen. Syst. of Gard. and Bot. v. i. pp. 146 & 148.—Mack. Fl. Hibern. pt. i. pp. 16.—Hook. Brit. Fl. (4th ed.) p. 397.—ROSALES; subord. RHŒADOSÆ; sect. RHÆADINÆ; type, BRASSICACEÆ; subtype, ARABIDÆ; Burn. Outl. of Bot. pp. 614, 784, 847, 854, & 856.—SILIQUOSÆ, *Linn.*

GEN. CHAR. *Calyx* (see fig. 1.) inferior, equal at the base, of 4, egg-shaped, concave, equal, spreading, deciduous sepals. *Corolla* (see fig. 1.) of 4, inversely egg-shaped, undivided, spreading, unequal petals, with short claws (see fig. 3.); the two outermost (see fig. 1.) largest, equal to each other. *Filaments* (fig. 2.) 6, tetradynamous, about the length of the calyx, awl-shaped, distinct, simple. *Anthers* roundish. *Germen* (fig. 4.) almost circular, notched at the summit, compressed. *Style* (see fig. 4.) very short. *Stigma* blunt. *Pouch (silicula)* (fig. 5.) egg-shaped, transversely compressed, bordered, of 2 cells, cloven at the top into 2 acute lobes, between which stands the permanent, somewhat elongated, *style;* valves 2, distinct, boat-shaped, each with a dilated pointed keel (see fig. 6, c); partition (fig. 6, *b.*) elliptical, membranous, as wide as the valves. *Seeds* (fig. 6, *a.*) one in each cell, egg-shaped, pendulous. *Cotyledons* (see figs. 8 & 9.) egg-shaped, flat, accumbent (o=).

Distinguished from other genera, with accumbent *cotyledons*, in the same class and order, by the unequal *petals;* and the much compressed, egg-shaped, notched *pouch*, of 2, 1-seeded cells.

One species British.

IBE'RIS AMA'RA. Bitter Candy-tuft. White Candy-tuft. Clown's Mustard.

SPEC. CHAR. Herbaceous. Leaves spear-shaped, pointed, somewhat toothed, smooth. Flowers corymbose, finally racemose.

Engl. Bot. t. 52.—Linn. Sp. Pl. p. 906.—Huds. Fl. Angl. (2nd ed.) p. 285.—Willd. Sp. Pl. v. iii. pt. i. p. 456.—Sm. Fl. Brit. v. ii. p. 692.; Engl. Fl. v. iii. p. 181.—With. (7th edit.) v. iii. p. 765.—Gray's Nat. Arr. v. ii. p. 693.—Lindl. Syn. p. 28.—Hook. Brit. Fl. p. 296.—Macr. Man. Brit. Bot. p. 18.—Lightf. Fl. Scot. v. ii. p. 1136.—Sibth. Fl. Oxon. p. 201.—Davies' Welsh Bot. p. 63.—

Fig. 1. Calyx and Corolla.—Fig. 2. Stamens.—Fig. 3. A separate Petal.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. Pouch.—Fig. 6. The same, with one of the valves removed; *a.* one of the seeds; *b.* the partition; *c.* one of the valves.—Fig. 7. The Partition, with the valves and seeds removed.—Fig. 8. A Seed with the testa or skin removed, showing the two cotyledons, with the radical meeting their edges, (cotyledons incumbent). Fig. 9. Transverse section of the same.—*All more or less magnified.*

* From *Iberia*, the ancient name of *Spain*, where some of the species grow.
† See f. 38, n. †. ‡ See f. 107, n. ‡. § See f. 38, *a.* ‖ See f. 141, n. ‖.

Winch's Fl. of Northumb. and Durh. p. 43.—Don's Gen. Syst. of Gard. & Bot. v. i. p. 194.—Walker's Fl. of Oxf. p. 186.—Irv. Lond. Fl. p. 162.—Cow. Fl. Guide, p. 91.—*Thlaspi amarum*, Johns. Gerarde, p. 263; the figure bad.

Localities.—In chalky fields; rare.—*Oxfordshire;* Henley; Nettlebed; and Mungewell: Dr. Sibthorp. Near Goring: Mr. L. Danwall, Trinity College, Cambridge. Corn-fields near Woolton; near Lewknor; and Stokenchurch Hills: G. Colls, Esq., Woodstock. Corn-fields on the right hand side of Cheney Lane, between the Asylum and the Wind-mill, Sept. 10, 1823; probably introduced with corn. Between Ibstone and Penley Hangings, plentifully; Sept. 17, 1824: W. B.—*Berks;* About Wallingford, plentifully, and undoubtedly wild: Sir J. E. Smith, and Rev. A. Bloxam. Compton Downs: N. J. Winch, Esq. Chalky ground near Hurley: Mr. Gotobed. Corn-fields between Streatley and Pangbourn: 1833; Mr. W. Pamplin, jun.—*Bucks;* Chalky ground near Marlow: Mr. Gotobed. Field between Medenham and Hambledon: Mr. W. Hurst, in N. B. G.—*Cambridgeshire:* About half a mile to the right of the road from Royston to Melbourne: W. H. Coleman, in N. B. G.—*Derbyshire;* Between Crich and Matlock: *Lond. Fl.—Herts;* Corn-fields near Royston: Mr. W. Christy, in N. B. G.—*Kent;* Blue-Bell Hill; Mr. W. Pamplin, jun.—*Northumberland;* In fields on the banks of Tyne near Hexham Bridge; at Hofeld banks; and Bed of the Tweed, above Coldstream: N. J. Winch, Esq. —*Somerset;* Yeovil: *Mag. Nat. Hist.* Very rarely among the sand-hills at Burnham: J. C. Collins, in N. B. G.—*Staffordsh.* Road-side between Cheadle and Oakmoor; on a Common: Rev. J. Horatio Dickenson.—*Westmorland;* Waste near Kent Terrace: N. B. G.—*Yorkshire;* Below Birbeck's Weir, Settle: N. J. Winch, Esq. Probably an outcast from a garden, and washed down by the river: Mr. John Tatham, in N. B. G.—WALES. *Anglesey;* Above the beech between the Mount and Llaniog, in several places: Rev. H. Davies. —SCOTLAND. *Fifeshire;* Inchcolm, near Edinburgh: N. B. G.—*Lanarkshire;* Sands below Hamilton Bridge, nearly opposite the termination of the plantation: N. B. G. No longer to be found in Lightfoot's station of "fields between Hamilton and Glasgow:" *Fl. Clot.—Roxburghsh.* On a sandy bank of the Tivi.t, a little to the east of Denholm, probably an outcast from some garden: Rev. James Duncan, in N. B. G.—I am not aware that it has been found wild in Ireland. It is not in Mr. Mackay's *Flora Hibernica*.

Annual.—Flowers from June to September.

Root small, tapering, fibrous. *Stem* from six inches to a foot high, spreading, branched, leafy, smooth or slightly pubescent. *Leaves* alternate, somewhat fleshy, strap-spear-shaped and entire, or dilated and wedge-shaped, with several tooth-like notches, especially towards the apex, or with a tooth or two on each side. *Flowers* white, in a kind of corymb, which lengthens into a raceme as the inflorescence advances. *Calyx* upright. *Corolla* irregular, the two outer petals twice the length of the two inner ones. *Pouch* nearly circular, sharply notched at the end. *Seeds* flat, brownish-yellow, with a narrow border of a rather darker colour.

This species is a native of Europe from Portugal to Germany, and from England to Italy. It is often cultivated in the flower garden, where its brilliant white blossoms are very ornamental. The seeds are acrid and very bitter, and are said to be violently purgative. The whole plant is very bitter, and its general qualities antiscorbutic.



Chenopodium hybridum Maple-leaved Goose-foot ⊙

C. Mathews Del & Sc

Pub.d by W. Baxter Botanic Garden Oxford 1839

CHENOPO'DIUM *.

Linnean Class and Order. PENTA'NDRIA †, DIGY'NIA.

Natural Order. CHENOPO'DEÆ‡, *Vent.*—Lindl. Syn. p. 213; Introd. to Nat. Syst. of Bot. p. 167.—Loud. Hort. Brit. p. 531.—Mack. Fl. Hiber. p. 226.—Hook. Brit. Fl. (4th ed.) p. 416.—ATRIPLICES, Juss. Gen. Pl. p. 83.—Sm. Gram. of Bot. p. 91.—Rich. by Macgilliv. p. 425.—QUERNEALES; sect. RUMICINÆ; type, BETACEÆ; subty. CHENOPODIDÆ; Burn. Outl. of Bot. v. ii. p. 523, 587, & 591.—HOLERACEÆ, *Linn.*

GEN. CHAR. *Calyx* (see figs. 1 & 2.) inferior, of 1 sepal, concave, in 3, 4, or 5 deep, egg-shaped, concave, permanent segments, membranous at the edges, neither warted nor growing together after flowering. *Corolla* none. *Filaments* (see fig. 2.) 5, sometimes fewer, awl-shaped, opposite to the segments, and about as long. *Anthers* of 2 round lobes. *Germen* (fig. 3.) orbicular, depressed. *Styles* short. *Stigmas* blunt. *Seed* (fig. 5.) solitary, lenticular (spherically convex on both sides), crustaceous, enveloped in a very thin, membranous, close *pellicle*, and covered by the permanent 5-angled calyx (see fig. 4.).

The 3-, 4-, or 5-parted *calyx*; and the solitary, roundish, tunicated, superior *seed*; will distinguish this from other genera, without petals, in the same class and order.

Thirteen species British.

CHENOPO'DIUM HY'BRIDUM. Hybrid Goosefoot. Maple-leaved Goosefoot. Thorn Apple-leaved Goosefoot. Maple Blite.

SPEC. CHAR. Leaves heart-shaped, pointed, with broad angular teeth. Clusters much branched in a somewhat cymose manner, divaricated, leafless.

Engl. Bot. t. 1919.—Curt. Fl. Lond. t. 248.—Linn. Sp. Pl. p. 319.—Huds. Fl. Angl. (2nd edit.) p. 105.—Willd. Sp. Pl. v. i. pt. ii. p. 1303.—Sm. Fl. Brit. v. i. p. 275.; Engl. Fl. v. ii. p. 12.—With. (7th ed.) v. ii. p. 345.—Lind. Syn. p. 215.—Hook. Brit. Fl. p. 138.—Macr. Man. Brit. Bot. pp. 195 and 196.—Lightf. Fl. Scot. v. i. p. 149.—Sibth. Fl. Oxon. p. 89.—Abbot's Fl. Bedf. p. 55.—Purt. Midl. Fl. v. i. p. 135.—Relh. Fl. Cant. (3d ed.) p. 105.—Hook. Fl. Scot. p. 84.—Grev. Fl. Edin. p. 58.—Winch's Fl. of Northumb. and Durh. p. 16.—Walker's Fl. of Oxf. p. 70.—Perry's Pl. Variæ. Selectæ, p. 24.—Irv. Lond. Fl. p. 122.—Cow. Fl. Guide, p. 26.—*Chenopodium angulatum*, Gray's Nat. Ar. v. ii. p. 284.—*Chenopodium stramonii folio*, Dill. in Ray's Syn. p. 154.—Vaill. Par. p. 36. t. 7. f. 2.

LOCALITIES.—In waste places, cultivated fields, and gardens; not common.—*Oxfordsh.* On dunghills, and rubbish: Dr. SIBTHORP. A weed in the Botanic Garden: W. B.—*Beds;* Mill Lane, Bedford: Rev. C. ABBOT.—*Cambridgesh.* Banks of some watery pits beyond Ely: Mr. J. SHERARD, in Ray's Syn. Not uncommon in gardens: Rev. R. RELHAN.—*Dorset.* In a corn-field near Blandford; and on waste grounds near Poole: Dr. PULTENEY.—*Durham.* On the

Fig. 1. Back view of the Calyx.—Fig. 2. Front view of the same, with the stamens and Pistils.—Fig. 3. Germen and Pistils.—Fig. 4. Calyx, with the ripe seed inclosed.—Fig. 5. A Seed.—*All a little magnified.*

* From *chen*, *chenos*, Gr. a *goose*; and *pous*, Gr. a *foot*; probably alluding to a fancied resemblance of the leaves of certain species to the foot of a goose. WITHERING. † See folio 18, note †. ‡ See folio 231, *a*.

Sunderland Ballast-hills: N. J. Winch, Esq.—*Essex;* About Woodford: R. Warner, Esq. Churchyard at Sible Hedingham: D. Turner, Esq. About Colchester: Dale. Between Ipswich and Dedham: Sir J. E. Smith.—*Gloucestersh.* Near Bristol: Miss Worsley, in N. B. G.—*Kent;* Near Northfleet, plentifully: Hudson. About Greenhithe: Mr. D. Cooper. Near Feversham: E. Jacob, Esq.—*Middlesex;* About London: Mr. D. Cooper.—*Norfolk;* Oxburgh: Mr. Pitchford. Waste places by the river: N. B. G.—*Northumberland;* On St. Anthon's Ballast-hills: N. J. Winch, Esq.—*Suffolk;* Sibton Abbey: Mr. Davy. About Bury: Sir T. G. Cullum. Yarmouth, near the river: Mr. Wigg.—*Surrey;* In Battersea fields, betwixt the Windmill Meadow and the road leading to Chelsea Bridge, adjoining the Gardener's ground: Mr. W. Curtis. Near Mitcham: Mr. E. Foster, jun. At Wandsworth; and in Lavender Hill Nursery: Mr. W. Pamplin, jun. Norwood: Mr. D. Cooper.—*Warwicksh.* Among rubbish on the road from Hampton-on-the-Hill to Warwick: Mr. W. G. Penry.—In *Worcestershire;* Mr. E. Lees.—SCOTLAND. *Edinburghshire;* In cultivated fields about Edinburgh: Mr. G. Don.—Not in the Irish Flora.

Annual.—Flowers in August.

Root simple, with numerous, slender, spreading fibres. *Stem* upright, from 1 to 2 feet high; branched, angular, smooth, leafy. *Leaves* alternate, on rather slender petioles, smooth, without any mealiness, veiny, broad, somewhat triangular, taper-pointed, with 2 or 3 broad angular teeth on each side, heart-shaped, or egg-shaped, not elongated at the base. *Petioles* shorter than the leaves, convex on the under, and furrowed on the upper side. *Flowers* inconspicuous, in axillary and terminal, somewhat cymose, slender, divaricated, leafless *panicles*. *Calyx* divided nearly to the base into 5 egg-shaped, bluntish, mealy, segments, which are membranous at the edges. *Corolla* none. *Seed* round, flattened, of a dark chesnut colour, with silvery white dots.

The leaves of this species very much resemble those of the *Thorn Apple (Datura stramonium*, t. 121.*)* It has a strong and disagreeable smell, and is, by some authors, suspected to be poisonous. Tragus mentions it as a plant fatal to swine.

Mr. W. Pamplin, jun. remarks, that in the Lavender-Hill Nursery, Wandsworth, it occasionally varies with the stems, petioles, and veins of the leaves, of a rich purple colour.

AUTUMN.

"Sweet Sabbath of the year, while evening lights decay,
Thy parting steps methinks I hear steal from the world away.
Amid thy silent bowers 'tis sad, but sweet, to dwell,
Where falling leaves and drooping flowers around me breathe farewell.
Along thy sunset skies their glories melt in shade,
And, like the things we fondly prize, seem lovelier as they fade,
A deep and crimson streak thy dying leaves disclose;
As, on Consumption's waning cheek, 'mid ruin, blooms the rose.
Thy scene each vision brings of beauty in decay;
Of fair and early faded things, too exquisite to say;—
Of joys that come no more; of flowers whose bloom is fled;
Of farewells wept upon the shore; of friends estranged or dead:—
Of all that now may seem, to Memory's tearful eye,
The vanished beauty of a dream, o'er which we gaze and sigh."

Anonymous.



Linum usitatissimum. Common Flax. ○

J. Russell Del. Pub^d by C. W. Baxter Botanic Garden Oxford 1 Augt 1839 C. Mathews

LI'NUM *.

Linnean Class and Order. PENTA'NDRIA †, PENTAGY'NIA.

Natural Order. LI'NEÆ, *Dec.*—Lindl. Syn. p. 53.; Introd. to Nat. Syst. of Bot. p. 155.—Loud. Hort. Brit. p. 502.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 449.—Mack. Fl. Hibern. p. 51.—Hook. Brit. Fl. (4th ed.) p. 400.—GERANIACEÆ; tribe, LINACEÆ, Rich. by Macgilliv. pp. 474 & 475.—Akin to CARYOPHYLLEÆ, Juss. Gen. Pl. p. 303.—Sm. Gram. of Bot. pp. 159 and 161.—GRUINALES, *Linn.*—ROSALES; suborder, RHŒADOSÆ; section, GRUINÆ; type, LINACEÆ; Burn. Outl. of Bot. v. ii. pp. 614, 784, and 808.

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 5 spear-shaped, entire, upright, permanent sepals, smaller than the corolla. *Corolla* (fig. 2.) of 5, moderately spreading petals, gradually dilated upwards, obtuse, or abrupt. *Filaments* (figs. 3 & 4.) 5, as long as the calyx, awl-shaped, upright, inserted into an annular *floral receptacle*, along with the petals, and 5 shorter, intermediate, imperfect ones. *Anthers* arrow-shaped. *Germen* (fig. 6.) superior, egg-shaped. *Styles* (see fig. 6.) 5, thread-shaped, upright, the length of the stamens. *Stigmas* bluntish, spreading, undivided. *Capsule* (figs. 8 & 9.) nearly globular, obscurely 5-sided, with 10 cells, and 10 valves, combined in pairs. *Seeds* (fig. 11.) solitary, egg-shaped, pointed, compressed, polished.

Distinguished from other genera, in the same class and order, by the *calyx* of 5 sepals; the *corolla* of 5 petals; the 10-celled, and 10-valved *capsule;* and the egg-shaped, compressed *seeds.*

Four species British.

LI'NUM USITATI'SSIMUM ‡. Common Flax. Lint. Lyne. Linseed, or Lintseed.

SPEC. CHAR. Leaves alternate, spear-shaped. Sepals egg-shaped, pointed, with 3 ribs. Petals crenate. Stem mostly solitary.

Engl. B t. t. 1357.—Curt. Fl. Lond. t. 316.—Woodv. Med. Bot. v. ii. p. 303. t. 111.—Mart. Fl. Rust. t. 133.—Linn. Sp. Pl. p. 397.—Huds. Fl. Angl. (2nd ed.) p. 133.—Willd. Sp. Pl. v. i. pt. II. p. 1533.—Sm. Fl. Brit. v. i. p. 342.; Engl. Fl. v. ii. p. 118.—With. (7th ed.) v. ii. p. 407.—Gray's Nat. Arr. v. ii. p. 640.—Lind. Syn. p. 53.—Hook. Brit. Fl. p. 147.—Macr. Man. Brit. Bot. p. 35.—Lightf. Fl. Scot. v. i. p. 173.—Abbot's Fl. Bedf. p. 71.—Thornt. Fam. Herb. p. 331, with a figure.—Dickson's Practical Agriculture, v. ii. pp. 733 to 744.—Davies' Welsh Bot. p. 31.—Purt. Midl. Fl. v. i. p. 164.—Relh. Fl. Cant. (3rd ed.) p. 132.—Hook. Fl. Scot. p. 97.—Grev Fl. Edin. p. 74.—Fl. Devon. pp. 56 & 181.—Loud. Encycl. of Agricult. (2nd ed.) pp. 913 to 916. parag. 5880 to 5921, with figures.—Don's Gen. Syst. of Gard. and Bot. v. i. pp. 453 to 456.—Winch's Fl. of Northumb. & Durh. p. 21.—Baxt. Lib. of Agricult. and Horticult. Knowl. (2nd ed.) p. 239.—Walker's Fl. of Oxf. p. 88.—Perry's Pl. Varvic. Selectæ, p. 27.—Lind. Fl. Med. p. 129.—Dick. Fl. Abred. p. 32.—Irv. Lond. Fl. p. 173.—Mack. Catal of Pl. of Irel. p. 31; Fl. Hibern. p. 51.—*Linum sylvestre sativum plane referens,* Ray's Syn. p. 362.—*Linum sativum,* Johnson's Gerarde, p. 556.

Fig. 1. Calyx.—Fig. 2. Corolla.—Figs. 3, 4, & 5. Stamens.—Figs. 6 & 7. Germens, Styles, and Stigmas.—Fig. 8. Capsule, with the Calyx.—Fig. 9. Ditto, without the Calyx.—Fig. 10. Transverse section of ditto.—Fig. 11. A Seed.

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* From *linon,* Gr.; and this from *lin,* Celtic; *a thread;* hence our word *linen.* THORNTON.

† See folio 48, note †.

‡ So called from its extreme utility, and the various economical purposes to which its several parts are applied. BURNETT.

Localities.—In corn-fields, sandy pastures, and Downs; most common in the Western Counties.

Annual.—Flowers in June and July.

Root simple, slender, fibrous, of a pale brown colour. *Herb* very smooth. *Stem* from 1 to 2 feet high, upright, round, straight, leafy, branched only at the top. *Leaves* alternate, sessile, pointed, 3-ribbed, quite entire, rather glaucous; the lowermost short and blunt. *Flowers* several, growing in a corymbose panicle, on round, smooth peduncles. *Calyx* permanent. *Sepals* egg-shaped, pointed, or mucronate, 3-nerved, with scarious or membranaceous, irregularly fringed margins. *Corolla* large, and rather handsome. *Petals* wedge-shaped, thin and delicate, readily dropping off, blue, glossy, with numerous darker coloured veins. *Filaments* dilated at the base, where they are slightly united. *Anthers* at first oblong, but finally arrow-shaped, incumbent, blue. *Styles* somewhat club-shaped, blue. *Capsule* roundish, with a sharp point. *Seeds* elliptical, highly polished.

This species is said to be found commonly all over Europe; in North America, and in Asia; even on the Neelgherry hills of India. The seeds yield, by expression only, a large portion of oil, well known under the name of Lint-seed oil, which is sometimes used in medicine. When heat is applied, it acquires a yellowish colour, and is used by painters and varnishers. After the oil is expressed, the remaining farinaceous part is the oil-cake upon which oxen are fattened. The seeds also contain a large quantity of bland mucilage, whence their use in decoction as demulcents. Lint-seed meal forms one of the materials for cataplasms; and the oil mixed with lime-water has been a favourite application to burns. The fibres of the stem of this plant are manufactured into thread and linen cloth, from the finest cambric to the coarsest canvass; and this, when worn to rags, is made into paper. For these purposes flax has been cultivated from the earliest ages, and for an unknown length of time in Britain, and other northern parts of Europe. At one period private families raised enough for their own consumption, but the process of maceration proving highly detrimental to the streams and common ponds, Acts were passed, in the reigns of Henry VIII. and our first James, to prevent this process being carried on in any stream or pond where cattle drank, under a heavy penalty. The new plan of steeping flax in hot water with soft soap, is said to be a great improvement, and it was for this process that a secret or unenrolled patent was granted about 25 years ago to Lee, its inventor. This process is said to separate the fibre from the woody matter better than steeping in water; and this in the short space of two or three hours. The flax used in this country is chiefly of foreign growth, for, notwithstanding the rewards latterly held out by the Legislature to encourage its domestic culture, it is found in well-peopled districts to be an unprofitable investment, not only from its inferior value to corn, but from its being one of the most exhausting crops that can be grown, especially when allowed to ripen its seeds. Our principal supplies are from Russia, the Netherlands, and Prussia; some is also brought from France, Egypt, and even from New South Wales.—See *Burn. Outl. of Bot.; With. Bot. Arr.; Loud. Ency. of Agricult.*, &c.

The few plants which compose the *Natural Order* Lineæ, are mostly *herbaceous*. Their *leaves* are entire, and without *stipulæ*. Their *calyx* consists of from 3 to 5 *sepals*, which are permanent, and imbricated in the bud. Their *corolla* is formed of 4 or 5 *petals*, which are twisted in the bud, and very fugacious. Their *stamens* vary from 3 to 5, with their filaments united at the base into an hypogynous ring, with small teeth (abortive stamens) between them. The *ovary* has about the same number of cells as there are sepals, and as many *styles*. The *stigmas* are capitate. The *capsule* is globose, and crowned with the permanent base of the styles; each cell is partially divided into two by a spurious dissepiment, and opens with 2 valves at the apex. The *seeds* are solitary in each cell, compressed, and inverted; with flat *cotyledons*; and a straight *embryo*, with the radical pointing towards the hilum.

The only British genera in this order are, *Linum*, t. 353.; and *Radiola*, t. 188.



Origanum? vulgare. Common Marjoram. 4

C. Mathews. Del. & Sc. Pub.d by W. Baxter Botanic Garden, Oxford 1839

ORI'GANUM *.

Linnean Class and Order. DIDYNA'MIA †, GYMNOSPE'RMIA ‡.

Natural Order. LABIA'TÆ §, Juss. Gen. Pl. p. 110.—Sm. Gram. of Bot. p. 99.; Engl. Fl. v. iii. p. 63.—Bentham, in Bot. Regist. (1829).—Lindl. Syn. p. 196.; Introd. to Nat. Syst. of Bot. p. 239.—Rich. by Macgilliv. p. 439.—Loud. Hort. Brit. p. 528.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 665.—Mack. Fl. Hibern. p. 209.—VERTICILLATÆ of *Linnæus.*—SYRINGALES; subord. PRIMULOSÆ; sect. MENTHINÆ; type, MENTHACEÆ or LABIATÆ; subtype, SATURIDÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 968, & 972.

GEN. CHAR. *Involucrum* of numerous, imbricated, egg-shaped, flat, coloured, permanent leaves, one under each flower (see fig. 2, *a.*) longer than the calyx, forming a 4-angled spurious *catkin.* *Calyx* (fig. 1.) inferior, of 1 sepal, with a bluntly angular tube, 5-toothed; when in fruit closed up with hairs. *Corolla* (see fig. 2, *c.*) of 1 petal, ringent, tube rather longer than the calyx, a little compressed; upper lip erect, nearly flat, blunt, notched; lower lip in 3, deep, nearly equal, simple lobes. *Filaments* (see fig. 3.) 4, didynamous, thread-shaped, the 2 longest longer than the corolla. *Anthers* distant, egg-shaped, 2-lobed. *Germen* 4-lobed. *Style* (see fig. 3.) thread-shaped, ascending. *Stigma* very slightly notched. *Seeds* (see figs. 4, 5, & 6.) 4, egg-shaped, in the bottom of the closed, permanent calyx.

Distinguished from other genera in the same class and order, by the *involucrum* of numerous, dilated, flat, bracteas, 1 to each *flower*, collected into a spurious *catkin;* the 10- to 13-nerved, somewhat unequally 5-toothed *calyx;* and the straight, notched, upper lip of the *corolla.*

One species British.

ORI'GANUM VULGA'RE. Common Marjoram. English Wild Marjoram. Grove Marjoram. Common Organy.

SPEC. CHAR. Heads of Flowers roundish, panicled, crowded, upright. Bracteas egg-shaped, obtuse, smooth, longer than the calyx. Calyx with 5, pointed, unequal teeth; throat hairy.

Engl. Bot. t. 1143.—Curt. Fl. Lond. t. 338.—Woodv. Med. Bot. v. iii. p. 451. t. 164.—Linn. Sp. Pl. p. 824.—Huds. Fl. Angl. (2nd edit.) p. 262.—Willd. Sp. Pl. v. iii. pt. 1. p. 135.—Sm. Fl. Brit. v. ii. p. 639.; Engl. Fl. v. iii. p. 106.—With. (7th ed.) v. iii. p. 718.—Gray's Nat. Arr. v. ii. p. 380.—Lindl. Syn. p. 206.; 2nd. ed. p. 201.—Hook. Brit. Fl. p. 272.—Macr. Man. Brit. Bot. p. 181.—Light. Fl. Scot. v. i. p. 317.—Sibth. Fl. Oxon. p. 188.—Abb. Fl. Bedf. p. 132.—Thornt. Fam. Herb. p. 575, with a figure.—Davies' Welsh. Bot. p. 58.—Purt. Midl. F. v. ii. p. 749.—Relh. Fl. Cant. (3rd ed.) p. 245.—Hook. Fl. Scot. p. 184.—Grev. Fl. Edin. p. 133.—Fl. Devon. pp. 101 & 146.—Johnst. Fl. Berw. v. i. p. 134.—Winch's Fl. of Northumb. and Durh. p. 40.—Loud. Encycl. of Gard. (new ed.) p. 873. paragr. 4570.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 765.—Walker's Fl. of Oxf. p.

Fig. 1. Calyx.—Fig. 2. A separate Flower; *a.* the bractea; *b.* the calyx; *c.* the corolla.—Fig. 3. Vertical Section of the Corolla, showing the Stamens and Pistil.—Fig. 4. The 4 Seeds.—Figs. 5 & 6. Single Seeds.—*All,* except fig. 5, *magnified.*

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* Said to be derived from *oros,* Gr a *mountain;* and *ganos,* Gr. *joy;* the delight of the mountain. DON.

† See folio 31, note †. ‡ Ibid, note ‡. § See folio 94, *a.*

170.—Jacob's West Devon. and Cornw. Fl.—Bab. Fl. Bath. p. 39.—Dick. Fl. Abred. p. 43.—Irv. Lond. Fl. p. 134.—Luxf. Reig. Fl. p. 50.—Cow. Fl. Guide, p. 40.—Mack. Catal. Pl. of Irel. p. 56.; Fl. Hibern. p. 220.—*Origanum vulgare spontaneum*, Ray's Syn. p. 236.—*Origanum Anglicum*, John. Ger. p. 666.

LOCALITIES.—In thickets and hedges, and on dry banks, in a lime-stone or gravelly soil; frequent.

Perennial.—Flowers from June to September.

Root somewhat creeping, horizontal, brown, tufted with many fibres. *Stems* numerous, upright, from 8 inches to a foot and a half high, 4-cornered, purplish, leafy, clothed, more or less, with short recurved hairs; branched and panicled at the summit. *Leaves* opposite, on short petioles, deflexed, bright green, more or less hairy, rarely almost smooth, entire or slightly serrated, minutely fringed, and besprinkled with resinous dots on both sides. *Flowers* in panicled, crowded, roundish, upright spikes. *Bracteas* egg-shaped, pointed, of a purplish colour, one under each flower, longer than the calyx, smooth, or slightly hairy, and minutely serrated. *Calyx* tubular, with 5, upright, broadish, nearly equal, coloured teeth, striated, slightly hairy, covered with resinous dots; its mouth closed with dense, prominent, white hairs. *Corolla* light purple, slightly hairy, with a few scattered resinous glands, like those on the calyx; *Stamens* as long, or longer than the corolla, but in some specimens they are shorter, and then the *anthers* appear to be destitute of pollen.

The habit of this species is very variable. There is a variety of it with white flowers and green bracteas, but it is rare. Mr. BABINGTON has observed it in a lane near Bath. Another variety with variegated leaves is frequently cultivated in gardens; as is also the common one for culinary purposes.

The wild Marjoram is a warm aromatic; the dried leaves, used instead of tea, are extremely grateful; they are also employed in medicated baths and fomentations. The essential oil of this plant is so acrid, that it may be considered as a caustic, and was formerly much used with that intention by farriers; in some parts of Sweden it is put into ale, to give it an intoxicating quality, and to prevent its turning sour; a little cotton wool moistened with it, and put into the hollow of an aching tooth, often relieves the pain. It is also frequently used, mixed with olive oil, as a stimulating liniment against baldness, in rheumatic complaints, and against sprains and bruises. The tops will dye woollen cloth purple, and linen of a reddish brown colour. Goats and sheep eat this plant; horses are not fond of it; cows refuse it.—GERARDE says, "*Organy* given in wine is a remedy against the bitings and stingings of venomous beasts, and cureth them that have drunke opium, or the juice of blacke poppy, or hemlockes, especially if it be given with wine and raisons of the sunne."

PARKINSON (*Theat. Bot.* p. 16.) tells us, that "ANTIGONUS, an ancient Greeke Author, in his Rhapsody or huddle of memorable reports, relateth a pretty fable of a Tortoise eating *Origanum*, when hee goes to fight with the Serpent, which when one had heedfully observed, he cut up the *Origanum* where it grew, and took it away; whereof when the Tortoise was deprived, he perished by the venemous force of the Serpent. The same ANTIGONUS telleth downe there also another fable of the Ring-doves, who by putting *Origanum* into their wounds, were thereby cured. As also, that if the hills of Anis were stopped up with *Origanum* and Brimstone, they would quickly flie away."



Koniga maritima. Sea-side Koniga. ☉?

C. Mathews Del. 1838

Pub.d by W. Baxter Botanic Garden, Oxford 1839

KONI'GA *.

Linnean Class and Order. TETRADYNA'MIA †, SILICULO'SA ‡.

Natural Order. CRUCI'FERÆ §, Juss. Gen. Pl. p. 237.—Sm. Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv. p. 498.—CRUCIFERÆ; subord. PLEURORHIZEÆ ||; tribe, ALYSSINEÆ; Lindl. Syn. pp. 20, 21, & 25.; Introd to Nat. Syst. of Bot. pp. 14 to 18.—Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist. v. i. pp. 143 & 240.—Don's Gen. Syst. of Gard. and Bot. v. i. pp. 146 & 147.—Mack. Fl. Hibern. pt. i. p. 16.—Hook. Brit. Fl. (4th ed.) p. 397.—ROSALES; subord. RHŒADOSÆ; sect. RHÆADINÆ; type, BRASSICACEÆ; subtype, ARABIDÆ; Burn. Outl. of Bot. pp. 614, 784, 847, 854, & 856.—SILIQUOSÆ, *Linn.*

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 4, egg-shaped, concave, spreading, deciduous sepals, equal at the base. *Corolla* (fig. 2.) cruciform, of 4, inversely egg-shaped, entire, flat, spreading petals, with short claws. *Glands* 8, hypogynous. *Filaments* (fig. 4.) 6, tetradynamous, about as long as the calyx, all toothless. *Anthers* of 2 roundish lobes. *Germen* (fig. 5.) somewhat egg-shaped, compressed. *Style* short. *Stigma* simple, small. *Silicula (pouch)* (fig. 6.) scssile, somewhat egg-shaped, laterally compressed, tipped with the style, of 2 cells; valves flattish; dissepiment (partition) (see figs. 7 & 8.) membranous, of the same shape and breadth as the valves. *Seeds* (see fig. 7.) one or many in each cell, mostly bordered, their umbilical cords adhering by the base to the dissepiment. *Cotyledons* (see figs. 9 & 10.) accumbent (o=.)

Distinguished from other genera, with accumbent cotyledons, in the same class and order, by the entire, nearly equal *petals;* and the dehiscent, nearly entire *pouch*, of 2, 1- or many-seeded cells, a broad dissepiment (septum), and nearly flat valves.

One species British.

KONI'GA MARI'TIMA. Sea-side Koniga. Sweet Alyssum. Sea Alysson. Sweet Cameline.

SPEC. CHAR. Cells 1-seeded.

KONIGA MARITIMA. Brown in Append. Denh. and Clapp. Exp. Afr. p. 9.—Hook. Brit. Fl. p. 301.—Don's Gen. Syst, of Gard. and Bot. v. i. p. 175.—Bab. Fl. Bath. p. 5.—Dick. Fl. Abr. p. 45.—*Alyssum maritimum*, Willd. Sp. Pl. v. iii. pt. i. p. 459.—Engl. Bot. t. 1729.—Brown in Hort. Kew. (2nd ed.) v. iv. p. 95.—With. (7th ed.) v. iii. p. 750.—Gray's Nat. Arr. v. ii. p. 699.—Irv. Lond. Fl. p. 161.—*Alyssum minimum*, Linn. Sp. Pl. p. 908.—*A. halimifolium*, Curt. Bot. Mag. t. 101.—*Clypeola maritima*, Linn. Sp. Pl. p. 910.—*Glyce maritima*, Lind. Syn. p. 26.—*Thlaspi narbonense Lobelii*, Johnson's Gerarde, p. 267.

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. A Petal.—Fig. 4. Stamens and Pistil.—Fig. 5. Germen, Style, and Stigma.—Fig. 6. A Pouch.—Fig. 7. Pouch with the valves removed, showing the dissepiment, and the seed.—Fig. 8. The same, with seed removed.—Fig. 9. A Seed, with the testa or skin taken off, to show the accumbent cotyledons, and the radical.—Fig. 10. Transverse section of the same.—*All*, except fig. 5, *more or less magnified.*

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* *Konig* of ADANSON; *Koniga* of Dr. R. BROWN; so named in honour of CHARLES KONIG, F. R. S. F. L. S. Superintendant of the Natural History department in the British Museum. DON.

† See fol. 38, n. †, ‡ See fol. 107, n. ‡. § See fol. 38, *a*. || See fol. 141, n. ||.

Localities.—On banks and cliffs near the sea.—*Devon;* At Budleigh-Salterton: Sir W. J. Hooker, and H. Woollcombe, Esq. said not to be wild there. On the shore below Longroom Point, Plymouth, gathered two successive seasons, but hardly wild, and not plentiful: W. A. Bromfield, in N. B. G.—*Middlesex;* Among the refuse of gardens, on Hampstead Heath, not wild: A. Irvine, in Lond. Fl.—*Norfolk;* On a rock near Cromer: Miss Bell, in N.B.G.—*Somersetshire;* Naturalized on waste ground near Woodland Place, Bath: C. C. Babington, Esq. Burnham Sands: J. C. Collins, in N. B. G.—WALES. *Merionethshire;* Sands near Barmouth: H. Woollcombe, Esq.—SCOTLAND. About half a mile from the Sea, near Aberdeen: Professor W. Duncan, by whom it was first added to the British Flora.

Perennial.—Flowers from May to November.

Root very tough, branched, whitish, and fibrous. *Stem* from 4, to 8 or 10 inches high, either procumbent or upright, somewhat woody at the base, much branched, leafy, and clothed—like the leaves, calyx, and germen—with forked, close-pressed, silvery hairs. *Leaves* alternate, sessile, strap-spear-shaped, entire, tapering at the base, hoary, and of a glaucous-green colour. *Flowers* small, very numerous, sweet scented, in dense, tufted, or corymbose clusters, much elongated when in fruit. *Petals* roundish, of a brilliant white colour. *Stamens* simple, and, like the claws of the petals, turning purple in decay. *Pouch* nearly round, smooth, with a few scattered hairs, shining, slightly tumid, with one seed in each cell.

This plant is a native along the Mediterranean Sea, in the South, and in other parts of Europe. It is frequently cultivated in gardens on account of its agreeable honey-like scent, where it is usually treated as an annual. It begins flowering as early as May or June, and continues in bloom till near Christmas. Dr. Withering thinks it might prove a valuable acquisition to the apiarian border.

A striped variety of this species is not uncommon in gardens, where it is treated as a Green-house shrub; this should be increased by cuttings, which strike readily if planted under a hand-glass.

"Ye are not miss'd, fair flowers, that late were spreading
The Summer's glow by fount and dreary grot;
There falls the dew, its fairy favours shedding,—
The leaves dance on, the young birds miss you not.

Still plays the sparkle o'er the rippling water,
O Lily! whence thy cup of pearl hath gone;
The bright wave mourns not for its loveliest daughter,
There is no sorrow in the wind's low tone.

And thou, meek Hyacinth! afar is roving
The bee that oft thy trembling bells hath kiss'd;
Cradled ye were, fair flowers! midst all things loving,
A joy to all; yet, yet ye are not miss'd!

Ye, that were born to lend the sunbeam gladness,
And the winds fragrance, wandering where they list,—
Oh! it were breathing words too deep in sadness,
To say, *Earth's human flowers not more are miss'd.*"

Mrs. Hemans.



Atriplex patula. Spreading Halbert-leaved Orache.

C. Mathews Del. & Sc. Pub.d by W. Baxter Botanic Garden Oxford 1839

A'TRIPLEX*.

Linnean Class and Order. POLYGA'MIA†, MONŒ'CIA.

Natural Order. CHENOPO'DEÆ‡, *Vent.*—Lindl. Syn. p. 213; Introd. to Nat. Syst. of Bot. p. 167.—Loud. Hort. Brit. p. 531.—Mack. Fl. Hiber. p. 226.—Hook. Brit. Fl. (4th ed.) p. 416.—ATRIPLICES, Juss. Gen. Pl. p. 83.—Sm. Gram. of Bot. p. 91.—Rich. by Macgilliv. p. 425.—QUERNEALES; sect. RUMICINÆ; type, BETACEÆ; subty. CHENOPODIDÆ; Burn. Outl. of Bot. v. ii. p. 523, 587, & 591.—HOLERACEÆ, *Linn.*

GEN. CHAR. *Sterile Flower* (fig. 5.) and *united flower* (fig. 1.), which two are mostly barren. *Calyx* inferior, concave, permanent, in 5 deep, equal, egg-shaped, concave segments, thin or membranous at the margins. *Corolla* none. *Filaments* (see figs. 1 & 5.) 5, awl-shaped, from the bottom of the calyx, opposite to its segments, and about as long. *Anthers* of 2 round lobes. *Germen* superior, orbicular, usually very imperfect. *Style* (when present) short, deeply divided. *Stigma* simple, spreading. *Seed* 1, round, depressed, wrapped in a thin close *pellicle*, and covered by the closed permanent, 5-angled calyx. It is rare that our British species form any seed in these flowers. *Fertile flower* (fig. 2.) on the same plant. *Calyx* inferior, in 2, deep, large, flat, upright, compressed, egg-shaped, bluntish segments. *Corolla* none. *Stamens* none. *Germen* (see fig. 2.) superior, compressed. *Style* (see fig. 2.) short, deeply divided. *Stigmas* simple, spreading. *Seed* (see figs. 3 & 4.) 1, round, compressed, wrapped in a thin close pellicle, and enclosed between the enlarged, converging, heart-shaped segments of the calyx.

The 5-cleft *calyx;* and the 5 *stamens* of the *sterile* and of the *united flowers;* and the 2-parted *calyx;* the bifid *style;* and the single *seed* of the *fertile flowers;* will distinguish this from other genera, without a corolla, in the same class and order.

The presence of the fertile or pistilliferous flowers with a 2-parted calyx, is the only mark of distinction between this genus and that of *Chenopodium*; see t. 352.

Seven species British.

A'TRIPLEX PA'TULA. Spreading Halberd-leaved Orache. Delt Orrach. Common wild Orache. Fat-hen. Lambs-quarters.

Fig. 1. A Flower, with both Stamens and Pistil.—Fig. 2. Flower with Pistil only.—Fig. 3. A Seed.—Fig. 4. The same, accompanied with the 2 enlarged valves of the calyx of the pistilliferous Flower.—Fig. 5. A Flower with stamens only.—Fig. 6. A Spike after flowering, with the valves of the calyx of the pistilliferous or fertile Flowers enlarged.—Figs. 1 & 5. *slightly magnified.*

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* From *a*, Gk. *not;* and *traphein*, Gk. to *nourish;* as affording little or no nourishment.

† The 23rd Class of the Linnæan Artificial System; it contains those plants which have some flowers with both stamens and pistils; others with stamens only; and others with pistils only, either on the same plant, or on 2 or 3 distinct ones of the same species; such difference in the essential organs being moreover accompanied with a diversity in the accessory parts of the flowers.

‡ See folio 231, *a.*

Spec. Char. Stem herbaceous, spreading. Leaves triangular-spear-shaped, somewhat halberd-shaped, smooth above, irregularly toothed; the upper ones entire. Calyx of the fruit more or less tuberculated at the sides.

Engl. Bot. t. 936.—Linn. Sp. Pl. p. 1494.—Willd. Sp. Pl. v. iv. pt. ii. p. 964.—Sm. Fl. Brit. v. iii. p. 1091.; Engl. Fl. v. iv. p. 257.—With. (7th edit.) v. ii. p. 348.—Gray's Nat. Arr. v. ii. p. 281.—Lindl. Syn. p. 217.—Hook. Brit. Fl. p. 440.—Mack. Man. Brit. Bot. p. 196.—Davies' Welsh Bot. p. 96.—Relh. Fl. Cant. (3rd ed.) p. 415.—Purt. Midl. Fl. v. iii. p. 384.—Hook. Fl. Scot. p. 291.—Grev. Fl. Edin. p. 212.—Fl. Devon. pp. 161 & 140.—Johnst. Fl. Berwick, v. i. p. 223.—Winch's Fl. of Northumb. and Durh. p. 65.—Walker's Fl. of Oxf. p. 300.—Bab. Fl. Bath. p. 42.—Dick. Fl. Abred. p. 58.—Irv. Lond. Fl p. 122.—Luxf. Reig. Fl. p. 86.—Cow. Fl. Guide, p. 23.—Mack. Catal. Pl. of Irel. p 88; Fl. Hibern. p. 239.—*Atriplex hastata*, Curt Fl. Lond. t. 118.—Huds Fl. Angl. (2nd ed.) p. 443.—Light. Fl. Scot. v. ii. p. 636.—Sibth. Fl. Oxon. p. 90.—Abb. Fl. Bedf. p. 219.—Purt. Midl. Fl. v. ii. p. 489.—*Atriplex sylvestris folio hastato seu deltoide*, Ray's Syn. p. 151.—*Atriplex sylvestris vulgaris*, Johnson's Gerarde, p. 326.

Localities.—On cultivated as well as waste ground, and on rubbish and dung-hills; common.

Flowers in June, July, and August.

Root simple, slender, fibrous, and whitish. *Stem* usually upright, from 1 to 3 feet high, 4-cornered, the angles obtuse, the sides somewhat grooved, a little swollen at the joints, smooth, often of a purplish colour, much branched quite to the bottom; branches opposite, striated, spreading, the lowermost very long, sometimes almost equal with the stem itself, and for the most part procumbent. *Leaves* on the lower part of the stalk opposite, on longish petioles, triangular, somewhat halbert-shaped, having two, large, pointed, spreading lobes, at the base, with many very unequal, sharp, scattered teeth, between them and the point; the base quite entire; upper leaves mostly alternate, gradually narrower, with smaller lobes, or none at all, so that the floral ones are perfectly spear-shaped, as well as entire; all more or less powdery, especially on the under side. *Flowers* in axillary and terminal, long, upright, interrupted, often reddish *spikes*. The 2-valved *calyx* of the fertile flowers is armed at both sides with several prominent pointed tubercles, or prickles (see fig. 4). It is these flowers only which produce *seed*, which is rather large, and finely dotted.

A variety of this, γ of Smith, in which the whole plant is procumbent, more glaucous, often reddish, and somewhat fleshy, frequently occurs on sandy ground by the sea side, and in salt-marshes.

In a young state this species is frequently eaten instead of Spinach and other greens. Birds are very fond of the seeds; but cattle do not seem much to like the plant. In gardens and other cultivated ground it is a very troublesome weed, it should not therefore be allowed to grow and seed on dunghills.

Mr. Purton observes, in his excellent *Midland Flora*, that "in the morning, before the dew is evaporated, this plant displays a surprising brilliancy; the leaves and stem then being covered over with shining particles, as if they were studded with diamonds."



Listera Nidus-Avis. Common Birds-nest. 4

Russell. Del. *Pub^d by W. Baxter Botanic Garden Oxford. 1820.* *Mathews Sc.*

LISTE'RA *,

Linnean Class and Order. GYNA'NDRIA †, MONA'NDRIA.

Natural Order. ORCHI'DEÆ, *Linn.*—Juss. Gen. Pl. p. 64.—Sm. Gram. of Bot. p. 81.; Engl. Fl. v. iv. p. 3.—Lindl. Syn. p. 256; Introd. to Nat. Syst. of Bot. p. 262.—Rich. by Macgilliv. p. 412.—Loud. Hort. Brit. p. 536.—Mack. Fl. Hibern. p. 274.—Macr. Man. Brit. Bot. p. 224.—Hook. Brit. Fl. (4th ed.) p. 425.—PALMARES; order, MUSALES; sect. ORCHIDINÆ; type, ORCHIDACEÆ; Burn. Outl. of Bot. v. i. pp. 391, 437, 458, & 461.

GEN. CHAR. *Perianthium* ‡ *(calyx & corolla)* (fig. 1.) superior; *Sepals* 3, egg-shaped, concave, spreading, permanent; *Petals* 2, spear-shaped, spreading, about as long as the sepals; *Lip* (*nectary*, Sm.) without a spur, much longer than the petals, dependant, 2-lobed; slightly concave at the base within the sepals; disk marked with a longitudinal central furrow, producing honey. *Anther* (see fig. 2, *c.*) oblong, parallel to the stigma, to which it is fixed behind by its base, of 2 close, parallel, strap-shaped cells, which deposit the powdery masses of pollen upon the upper lip (fig. 2, *a.*) of the stigma. *Germen* inversely egg-shaped, or roundish, angular. *Style (column)* very short, cylindrical, not bordered. *Stigma* (see fig. 2, *a & b.*) in front, of 2, unequal, flat, parallel lips; the lowermost (fig. 2, *b.*) rounded, very short. *Capsule* (fig. 7.) elliptic-oblong, blunt, angular, ribbed. *Seeds* minute, tunicated.

The spreading segments of the *perianthium*; the spurless, 2-lobed *lip*; the wingless *column*; the *anther* fixed by its base, and parallel with the *stigma*; and the farinaceous *pollen*; will distinguish this from other genera in the same class and order.—Three species British.

LISTE'RA NIDUS-AVIS. Common Bird's-nest.

SPEC. CHAR. Leaves none. Stem with sheathing scales. Column without any crest. Lip oblong-spear-shaped, with 2 spreading lobes, toothless at the base.

Hook. Fl. Lond. t. 58.; Fl. Scot. p. 253.—Sm. Engl. Fl. v. iv. p. 38.—Hook. Brit. Fl. p. 377.—Macr. Man. Brit. Bot. p. 229 —Grev. Fl. Edin. p. 186.—Fl. Dev. pp. 144 & 132.—Johnst. Fl. Berw. v. i. p. 193.—Rev. G. E. Smith's Pl. S. Kent, p. 59.—Winch's Fl. Northumbl. and Durh. p. 57.—Walker's Fl. of Oxf. p. 258.—Bab. Fl. Bath. p. 49, Supp. p. 95.—Irv. Lond. Fl. p. 112.—Luxf. Reig. Fl. p. 76.—Cow. Fl. Guide, p. 36.—Mack. Fl. Hibern. p. 280.—*Epipactis Nidus Avis*, Sw. Orch. p. 66.—Willd. Sp. Pl. v. iv. pt. i. p. 87.—Perry's Pl. Varvic. Selectæ, p 74.—*Neottia Nidus Avis*, Lind. Syn. p. 258.—*Neottia abortiva*, Gray's Nat. Arr. v. ii. p. 209.—*Ophrys Nidus Avis*, Linn. Sp. Pl. p. 1339.—Huds. Fl. Angl. (2nd edit.) p. 388.—Sm. Fl. Brit. v. iii. p. 931.—With. (7th edit.) v. ii. p. 36.—Lightf. Fl. Scot. v. i. p. 522.—Sibth. Fl. Oxon. p. 12.—Abhot's Fl. Bedf. p. 194.—Purt. Mid. Fl. v. ii. p. 426; & v. iii. p. 378.—Relh. Fl. Cant. (3rd ed.) p. 362.—*Orchis abortiva fusca*, Bauh. Pin. p. 86.—Rudb. Elys. v. ii. p. 218. f. 1.—*Nidus Avis*, Ray's Syn. p. 382.—*Satyrium abortivum, sive Nidus Avis*, John. Ger. p. 228.

Fig. 1. Front view of a Flower.—Fig. 2. Side view of a portion of the Column; *a.* the upper lip of the Stigma, with the pollen masses on its upper surface; *b.* the lower lip of the Stigma; *c.* the Anther, having discharged its pollen masses.—Fig. 3. Portion of the Column seen from behind, the anther being removed; *a.* upper lip of Stigma with pollen masses; *b.* lower lip of ditto; *c.* recurved tubercle.—Fig. 4. Back view of Anther, removed from fig. 3.—Fig. 5. Front view of Anther before it has discharged its pollen masses.—Fig. 6. Granules of which pollen masses are composed.—Fig. 7. Capsule.—*All*, except fig. 1. *more or less magnified.* Figs. 2, 3, 4, 5, & 6, from *Fl. Lond.*

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* So called in honour of Dr. MARTIN LISTER, an eminent British Naturalist. HOOKER. † See f. 8. n. †. ‡ See f. 33, n. ‡.

Localities.—In shady woods, especially Beech, on a chalky or loamy soil.—*Oxfordsh.* Woods near Mapledurham; and Straw Hall: Mr. A. R. Bird. Tar Wood; and Stokenchurch Woods: Dr. Sibthorp. Plentiful in Stokenchurch Woods, in 1839: W. H. Baxter. Blenheim Park Plantations; and Bladon Heath: G. Coles, Esq.—*Berkshire;* In Bagley Wood near Oxford: Mr. James Benwell, and W. B. In a wood near Cumnor Hill: N. B. Young, Esq. Beech woods about Hurley: Sir J. E. Smith. Plentiful in Beech woods between Pangbourn and Reading: 1839, W. H. Baxter. Sheatley Wood: H. Woollcombe, Esq.—*Beds.* Clapham Park Wood; and Hostler's Wood, Chilton Green, near Dunstable: Rev. C. Abbot.—*Bucks;* Marlow Wood; and wood near Temple-house: B. G.—Beech Woods between Aylesbury, Tring, and Wendover: Mr. W. Pamplin, jun.—*Cambridgesh.* Madingley Wood; and Hall Wood: Rev. R. Relhan.—*Cumberland;* Buckham Wood: Mr. Woonward.—*Derbysh.* Walk by the river, near Willersley: Mrs. Hardcastle, in Mr. A. Jewitt's *Madlock Companion.*—*Devon;* Woodbury Hill: Rev. J. Jervis. Ugbrooke Park: Mr. Jacon.—*Dorset;* In the Chase, a little to the East of Rushmore Lodge; and Little Wood at Cheitle: Rev. Mr. Chaffin.—*Durham;* Castle Eden and Hawthorn Denes, and Whorl-ton-haugh Wood, Cocken: N. J. Winch, Esq.—*Essex;* On Epping Forest, not far from the gate of a wood, called the Sale, near the Hale End; on a hill called the Hawk; and in a wood on Laindon Hills: B. G.—*Gloucestersh.* Dowdeswell Wood, near Cheltenham: E. F. Witts, Esq.—*Hants;* Near Petersfield: Mr. W. Pamplin, jun. In Holt and Wickham Woods: Dr. Pulteney. Selborne, in the Long Lith under the shady beeches among the dead leaves; in Great Dorton among the bushes; and on the Hanger, plentifully: Rev. G. White.—*Kent;* About Maidstone; on Roehill; Woods about Charlton; near the little brook by the High Rocks, Tunbridge, towards Rusthall Common; and in a wood between Alkham and Ewel Minnis: B. G. Woods near Bexley, and Dartford: Mr. Graves. In a copse, near Sandling Lodge: Mr. W. Hutchinson.—*Lancash.* About Newton Cartmel: B. G.—*Middlesex;* In White Heath Wood, Harefield: B. G.—*Norfolk;* About Heyden; Gawdy Hall Wood at Harleston: B. G.—*Northamptonsh.* In Rockingham Forest, Wansford: *Lond. Fl.*—*Northumberland;* In Capheaton and Wallington Woods: Miss Emma Trivelyan. In Willimoteswick Dene and near Wardlew: M. J. Thompson. In Twizell Woods: Miss Forster.—*Notts;* Worksop Manor: H. Bidwell, Esq.—*Shropsh.* Benthale Hedge, near Coalport: H. Bidwell, Esq.—*Somerset;* In a wood above the Bradford road; in Friary Wood at Hinton Abbey; Smallcombe Wood; in Wolley and Hampton Woods; Rudloe; and Claverton Wood: *Fl. Bath.*—*Suffolk;* In Sir C. Davers' Wood, called the Pink; and in woods at Great and Little Saxham; Rushbrook; Parham; and Onehouse: B. G.—*Surrey;* In Norbury Park near Croydon; and on Ranmer Common: B. G. In Gatton Park: A. Irvine. Forest Hill Wood, Peckham: Mr. W. Christy. Woods at Fuller's Earth Pits, at Nutfield, and in the copse by Wray Common: G. Luxford.—*Sussex;* New Timber Woods, Danny Woods, Hurst Pierpoint, near the pond: B. G.—*Warwicksh.* Ragley Woods; Oversley Wood; and Middleton Woods: Rev. Mr. Bree.—*Westmoreland;* Buckham Wond near Lowther; and near Honey-bee-yate by Kendal: B. G.—*Worcestersh.* In a copse at Kemsey: Dr. Streeten.—*Yorksh.* In many parts of the County.—In WALES, SCOTLAND, and IRELAND, but rather rare.

Perennial.—Flowers in May and June.

Root of numerous, crowded, tufted, simple, thick, cylindrical, brownish, fleshy fibres. *Stem* solitary, from a foot to 18 inches high, upright, simple, angular, hollow, without leaves, but furnished with a few membranous, alternate, loose *sheaths*. *Flowers* numerous, brown, in an oblong, rather lax spike. *Sepals* and *Petals* loosely connivent into a globe, somewhat membranous. *Lip* longer than the petals, of a deeper colour; concave at the base; cloven at the extremity into 2 blunt, rounded, widely-spreading lobes. *Column* elongated, semicylindrical, without any hood. *Anther* terminal, egg-shaped, hemispherical at the back; a little concave in front, with 2 close, strap-shaped, parallel cells, depositing the yellow, oblong, farinaceous *pollen-masses* on the back of the oblong upper lip of the stigma (f. 2, *a.*), the under lip (f. 2, *b.*) of which is short and rounded. *Capsule* egg-shaped, ribbed, glandulose.

The whole plant is of a brown or pallid hue, a colour which is peculiar to parasitical plants in general. In habit it is closely connected with *Orobanche*, *Lathræa*, and *Monotropa* (t. 275); but whether it be truly parasitic, or nourished by decayed leaves and bark (among which its roots are imbedded), seems questionable. A very correct and beautiful portrait of this plant was given by Mr. Curtis, in his "British Entomology," about four or five years ago. The accompanying plate is from a specimen picked in Stokenchurch Woods, by my son, W. H. Baxter, Curator of the Royal Horticultural and Botanical Gardens, Bath.



Ornithopus perpusillus. Common Bird's-foot ⊙

Fitzsell. Del.

Pub.d by W. Baxter, Botanic Garden, Oxford. 1810

Mathews. Sc.

ORNI'THOPUS *.

Linnæan Class and Order. DIADE'LPHIA †, DECA'NDRIA.

Natural Order. LEGUMINO'SÆ, Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259.—Loud. Hort. Brit. p. 509.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—Hook. Brit. Fl. (4th ed.) p. 404.—Mack. Fl. Hib. p. 73.—LEGUMINA'CEÆ, Loud. Arb. Brit. p. 561.—PAPILIONA'CEÆ ‡, *Linn.*—ROSALES; sect. CICERINÆ; subsect. LOTIANÆ; type, LOTACEÆ; subtype, HEDYSARIDÆ; Burn. Outl. of Bot. pp. 614, 638, 642, & 657.

GEN. CHAR. *Calyx* (fig. 1.) inferior, tubular, permanent; the margin in 5, nearly equal, teeth. *Corolla* (see figs. 2 & 3.) papilionaceous, of 5 petals; standard (fig. 4.) inversely egg-shaped, ascending, entire; wings (fig. 5.) rather smaller, inversely egg-shaped, curved upward; keel (fig. 6.) still smaller; of 2 slightly tumid, converging, rounded petals, with slender distinct claws. *Filaments* (see fig. 7.) 10, 9 in one compressed tube, slit along the upper edge (fig. 7, *a.*); the tenth hair-like, distinct (fig. 7, *b.*); all curved upward at the extremity. *Anthers* minute, roundish. *Germen* (see fig. 7, *c.*) strap-shaped, compressed. *Style* (see fig. 7, *c.*) slender, ascending. *Stigma* capitate (knobbed), naked. *Legume* (fig. 8.) compressed, curved, of many single-seeded, indehiscent joints, whose sides are equal. *Seeds* (fig. 10.) roundish.

Distinguished from other genera, with a smooth style, in the same class and order, by the compressed, curved *legume* of many single-seeded, indehiscent joints, with parallel margins.

One species British.

ORNI'THOPUS PERPUSI'LLUS. Very-small Bird's-foot. Common Bird's-foot.

SPEC. CHAR. Leaves pinnate; leaflets small, numerous. Flowers capitate, accompanied by a leaf. Legumes curved upwards, beaked.

Engl. Bot. t. 369.—Curt. Fl. Lond. t. .—Linn. Sp. Pl. p. 1049.—Huds. Fl. Angl. (2nd ed.) p. 321.—Willd. Sp. Pl. v. iii. pt. ii. p. 1155.—Sm. Fl. Brit. v. ii. p. 777.; Engl. Fl v. iii. p. 290.—With. (7th ed.) v. iii. p. 847.—Gray's Nat. Arr. v. ii. p. 618.—Lindl. Syn. p. 87 —Hook. Brit. Fl. p. 326.—Macr. Man. Brit. Bot. p. 56.—Lightf. Fl. Scot. v. i. p. 399.—Sibth. Fl. Oxon. p. 225.—Abbot's Fl. Bed. p. 159.—Davies' Welsh Bot. p. 70.—Purt. Midl. Fl. v. i. p. 349.—Relh. Fl. Cant. (3rd edit.) p. 295.—Hook. Fl. Scot. p. 216.—Grev. Fl. Edin. p. 158.—Fl. Devon. pp. 122 & 175.—Winch's Fl. of Northumb. and Durh. p. 48.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 276.—Walker's Fl. of Oxf. p. 210.—Pamplin's Plants of Battersea and Clapham, p. 14.—Perry's Pl. Varvic. Selectæ, p. 62.—Bab. Fl. Bath. p. 13.—Irv. Lond. Fl. p. 176.—Luxf. Reig. Fl. p. 64.—Mack. Catal. of Pl. of Irel. p. 67.; Fl. Hibern. p. 85.—*Ornithopodium radice nodosa*, Ray's Syn. p. 326.—*Ornithopodium minus*, Johnson's Gerarde, 1241.

Fig. 1. Calyx.—Figs. 2 & 3. Calyx and Corolla.—Fig. 4. Standard, or Banner.—Fig. 5. One of the Wings.—Fig. 6. Keel.—Fig. 7 Stamens and Pistil; *a.* Nine united Stamens; *b.* the separate one; *c.* Stigma.—Fig. 8. A Legume.—Fig. 9. A single joint of Legume.—Fig. 10. A Seed.—*All*, except fig. 2. *more or less magnified.*

* From *ornis* or *ornithos*, Gr. a *bird*; and *pous*, Gr. a *foot*; from the similarity of the seed-vessels to a bird's foot. HOOKER.

† See folio 77, note †. ‡ See folio 117, note ‡.

Localities.—On banks, road-sides, heaths, and pastures, in a sandy or dry gravelly soil; frequent.—*Oxfordsh.* On Shotover Hill, close to the Ochre-pits, on a bank sloping to the South, in great abundance; June 15, 1831. Between Shotover Hill and Cuddesdon on a bank by the road-side near the two Windmills: W. B.—*Berks;* On a Common between Besselsleigh and Tubney, abundant: 1839, W. B.—*Bedfordsh.* Southill; Ampthill; and Aspley: Rev. C. Abbot.—*Cambridgesh.* Gamlingay, near the Wind-mills; and by White Wood: Rev. R. Relhan.—*Cornwall;* Pillaton: H. Woollcombe, Esq.—*Devon;* Milbourn Down, near Newton Abbot. Canonteign near Christowe; North Bovey; Manaton; Ilsington; Woodbury Hill; and Blackhill: Messrs. Jones and Kingston, in Fl. Devon.—*Durham;* On Sunderland Ballast-hills; and on dry banks near Urpeth: N. J. Winch, Esq.—*Essex;* Near Woodford: Mr. R. Warner. Epping Forest: Mr. D. Cooper. On Warley Common: Dr. Æneas Mac. Intyre.—*Hampsh.* Near Gosport: Rev. R. Palmer, in Mag. Nat. Hist. v. i. p. 276.—*Kent;* Blackheath, and Keston Common: Mr. D. Cooper.—*Lancash.* Park Quarry, Liverpool: Dr. Bostock.—*Leicestersh.* Near Grooby Pool: Rev. A. Bloxam.—*Middlesex;* Hampstead Heath: Mr. D. Cooper.—*Norfolk;* Mousehold Heath, near Norwich, and elsewhere: Mr. Woodward.—*Notts;* In Nottingham Park, on Radford Lings, and many other barren places: Dr. Deering.—*Shropsh.* Moif, near Bridgnorth: Hall. On the slopes of the Sharpstones Hill, near Shrewsbury: W. A. Leighton, Esq. in M. N. H. Common on the top of Whitcliff, near Ludlow: Dr. Babington, in Plymley's *Agricult. of Shropshire. Somersetsh.* Brendon Hill, near Bristol: Mr. Swain. Park Lodge, Keynsham: Dr. Davis.—*Staffordshire;* Kinver: Hall. Near Lichfield: Mr. Whately. *Surrey;* Clapham and Wandsworth Commons: Mr. W. Pamplin, jun. Wimbledon Common; and Barnes Common: Mr. D. Cooper, in Fl. Metrop. Grayswood: Miss C. Perry, ibid. On Reigate Heath, and elsewhere: Mr. G. Luxford. Dorking: Dr. Withering.—*Warwicksh.* Near Rugby; on the lower Hillmorton road: Rev. A. Bloxam. Winson Green; and Washwood Heath, near Birmingham: Drs. Stokes and Withering. Coleshill Heath: T. Purton, Esq. About Packington: Smith. Stonleigh new road, &c.: Mr. G. W. Perry.—*Worcestersh.* On the Malvern Hills; Hartlebury Common; Kemsey Common; and Blakebrook, near Kidderminster: Mr. E. Lees. Blackstone Rock, near Bewdley; on Sutton Common, near Kidderminster; and in fields between Kidderminster and Picket Rock: Mr. G. W. Perry, in M. N. H.—*Yorksh.* Near Knaresborough: Mr. Robon.—WALES. In Anglesey: Mr. H. Davies.—In SCOTLAND, and in IRELAND, but rare.

Annual.—Flowers from May to September.

Root slender, branched, with many long, whitish, fibres, which are frequently furnished with small tubercles. *Stems* numerous, procumbent, from 3 to 10 or 12 inches long, simple, round, furrowed, downy, leafy. *Leaves* pinnated, hairy, especially at the back, the radical ones spread on the ground, on short petioles; those on the stems alternate, sessile; *leaflets* small, egg-shaped, or elliptical, opposite, or alternate, of from 5 to 12 or 14 pair, with a terminal one about the same size and figure. *Stipulas* very small, upper ones awl-shaped, scarcely visible; lower ones strap-shaped, pointed, united laterally to the petiole. *Peduncles* longer than the leaves. *Flowers* from 1 to 5 in each little head or tuft, closely accompanied by a pinnated bractea of but few leaflets. *Calyx* downy, coloured. *Corolla* very small; standard very slightly notched at the end, white, beautifully veined with crimson; *wings* white, with a reddish tinge; *keel* yellowish. *Legumes* 1 to 5, rather compressed, pointed, curved upwards, finely hairy, wrinkled lengthwise when dry, their joints elliptical, and moderately compressed. *Seeds* roundish, one in each joint.

This elegant little plant is a native throughout Europe and the North of Africa, on heaths and gravelly pastures.

The beauty of its flowers when closely examined, and the great resemblance which its curved articulated legumes bear to the claws of a bird, render it an object highly deserving of attention. Sir J. E. Smith observes, that when it does not produce pods (legumes), it propagates itself by the grains or tubercles of its root, though in general the root is annual.



Raphanus Raphanistrum. Wild Radish ☉

Mathews Del. & Sc. Pub.d by W. Baxter Botanic Garden Oxford 1820.

RA'PHANUS*.

Linnean Class and Order. TETRADYNA'MIA†, SILIQUO'SA‡.

Natural Order. CRUCI'FERÆ§, Juss. Gen. Pl. p. 237.—Sm. Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv. p. 498.—CRUCIFERÆ; subord. ORTHOPLO'CEÆ; tribe, RAPHA'NEÆ; Lindl. Syn. pp. 20 & 34.; Introd to Nat. Syst. of Bot. pp. 14 to 18.—Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist. v. i. pp. 143 & 240.—Don's Gen. Syst. of Gard. & Bot. v. i. pp. 146, 150, & 256.—Mack. Fl. Hibern. pp. 16 & 27.—Hook. Brit. Fl. (4th ed.) pp. 397 & 398.—ROSALES; subord. RHŒADOSÆ; sect. RHÆADINÆ; type, BRASSICACEÆ; subtype, RAPHANIDÆ; Burn. Outl. of Bot. v. ii. pp. 614, 784, 847, 853, & 860.—SILIQUOSÆ, *Linn.*

GEN. CHAR. *Calyx* (fig. 1.) inferior, erect; of 4, oblong, parallel, converging, deciduous sepals; two of them slightly prominent at the base. *Corolla* (fig. 2.) cruciform, of 4, inversely egg-shaped, or inversely heart-shaped, spreading petals, with strap-shaped, upright claws (see fig. 3). *Filaments* (fig. 4.) 6, tetradynamious, awl-shaped, simple, upright. *Anthers* (see fig. 4.) oblong, a little spreading. *Glands* (see fig. 4.) 4, 2 at the inside of the shorter filaments; 2 at the outside of the longer. *Germen* (see fig. 5.) cylindrical, tapering. *Style* awl-shaped. *Stigma* capitate (knobbed), small, entire. *Pod (siliqua)* (see fig. 6.) indehiscent, oblong, imperfectly cylindrical, tapering upward, irregularly tumid, divided across into many cells, or separating into several pieces. *Seeds* in a single row, globose, pendulous. *Cotyledons* (see figs. 7 & 8.) rather thick, conduplicate (doubled together) [o > >.]

The upright *calyx;* and the tumid, imperfectly jointed *pod*, without valves; will distinguish this from other genera, with conduplicate *cotyledons*, in the same class and order.

Two species British.

RA'PHANUS RAPHANI'STRUM. Wild Radish‖. Jointed Charlock. White Charlock.

SPEC. CHAR. Leaves simply lyrate. Pods jointed, striated, of 1 cell, from 3- to 8-seeded; longer than the style.

Engl. Bot. t. 856.—Curt. Fl. Lond. t. 267.—Mart. Fl. Rust. t. 71.—Linn. Sp. Pl. p. 935.—Huds. Fl. Angl. (2nd edit.) p. 289.—Willd. Sp. Pl. v. iii. pt. i. p. 560.—Sm. Fl. Brit. v. ii. p. 723.; Engl. Fl. v. iii. p. 226.—With. (7th ed.) v. iii. p. 788.—Lindl. Syn. p. 34.—Hook. Brit. Fl. p. 310.—Macr. Man. Brit. Bot. p. 23.—Lightf. Fl. Scot. v. i. p. 362.—Sibth. Fl. Oxon. p. 203.—Abb. Fl. Bedf. p. 147.—Davies' Welsh Bot. p. 65.—Purt. Midl. Fl. v. i. p. 312.—Relh. Fl. Cant. (3rd ed.) p. 273.—Hook. Fl. Scot. p. 204.—Grev. Fl. Edin. p. 148.—Fl. Devon. pp. 144 and 191.—Johnst. Fl. Berw. v. i. p. 148.—Winch's Fl. Northumb. & Durh. p. 45.—Don's Gen. Syst. of Gard. and Bot, v. i. p. 262.—Walker's Fl. of Oxf. p. 197.—Dick. Fl. Abred. p. 46.—Irv. Lond. Fl. p. 165.—Luxf. Reig. Fl. p. 59.—Mack. Catal. Pl. Irel. p. 63.; Fl. Hibern. p. 30.—*Raphanus sylvestris*, Johnson's Gerarde, p. 240.—*Raphanistrum vulgare*, Gray's Nat. Arr. v. ii. p. 687.—

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. A Petal.—Fig. 4. Stamens.—Fig. 5. Germen.—Fig. 6. Pod or Siliqua.—Fig. 7. A Seed divested of its testa.—Fig. 8. A transverse section of the same, showing the conduplicate or folded incumbent cotyledons.

* From *ra*, Gk. *quickly;* and *phainomai*, Gk. *to appear;* from its rapid vegetation. HOOKER.

† See f. 38, n. †. ‡ See f. 62, n. ‡. § See folio 38, *a*. ‖ From *radix*, *a root*.

Raphanistrum siliquâ articulatâ glabrâ, majore et minore, Ray's Syn. p. 296.—*Rapistrum flore luteo, siliquâ glabrâ articulatâ*, Ray's Syn. p. 296.

Localities.—In corn-fields; often a troublesome weed.

Annual.—Flowers from June to August.

Root simple, tapering, slender, fibrous; of a pale brown colour. *Stem* from 1 to 2 feet high, upright, branched, hispid, leafy, of a somewhat glaucous colour; its bristles prominent and pungent. *Leaves* alternate, petiolated, simply lyre-shaped, rough; the lower ones with from 4 to 8, alternate, oblong, lateral lobes, and a large, rounded, terminal one; upper leaves oblong, or spear-shaped, pointed, undivided; all bluntly serrated, or toothed, the teeth often purplish at the tip. *Flowers* corymbose, rather large. *Calyx* generally bristly; sepals strap-shaped, upright, parallel, closing together, except at the tip, where they are a little spreading. *Corolla* straw-coloured, or white, said sometimes to be purplish, but always veined with dark lines; petals inversely egg-shaped, their claws a little longer than the calyx. *Pods (siliquæ)* in long clusters, upright, knobbed or apparently jointed, smooth, striated lengthwise when ripe, ending in a strap-shaped, flat, smooth beak. *Seeds* large, roundish, of a rusty-brown colour, very smooth, one in each joint of the pod.—Sir J. E. Smith says, the *germen* is divided into 2 cells, but the partition is obliterated, and confounded in one spongy mass as the pod ripens.

Wild Radish is a native, in corn-fields, throughout the whole of Europe. Linnæus, in a dissertation in the *Amœnitates Academicæ* (vol. vi. p. 433), informs us, that in wet seasons this weed abounds among barley in Sweden, and that being ground with the corn, the common people, who eat barley bread, are afflicted with convulsive complaints, or an epidemic spasmodic disease, called, from it, *Raphania*.—M. Villars, however, remarks that this weed is so common in some of the cold moist vallies of Dauphiny, that it must make great ravages there, if it were as dangerous as Linnæus has represented it, and yet this spasmodic disorder is unknown in that country. Spielmann, Beckmann, and others, have written against Linnæus on this subject; and Kroker has proved the plant to be harmless, and recommends it as a nutritious food for domestic quadrupeds, and as very agreeable to bees.—From experiments made by Linnæus, it appears that horses eat it, but cows and goats refuse it. Professor Burnett thinks the deleterious effects ascribed to this plant in Sweden, are more probably owing to a morbid condition of the seeds, or to the growth of noxious fungi on them, than to any inherent unwholesome principle; if this is not the case it will be difficult to account for *Raphania* not appearing every year, as the *Raphanus* is constantly and abundantly blended with corn, both in Sweden and in this country. In England, however, where the plant abounds, *Raphania* is unknown.

Much valuable and interesting information respecting the nature and origin of *Raphania* and many other diseases, may be obtained from Professor Burnett's "Outlines of Botany;" a work which no botanical or medical Student should be without.



Petroselinum Segetum Corn Parsley. ☉

Mathews Del & Sc Pub.d by W. Baxter, Botanic Garden Oxford 1810

PETROSELI'NUM*.

Linnean Class and Order. PENTA'NDRIA †, DIGY'NIA.

Natural Order. UMBELLI'FERÆ‡, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.—Lindl. Syn. p. 111; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—Hook. Brit. Fl. (4th edit.) p. 408.—UMBELLATÆ, *Linn.*—ROSALES; sect. ANGELICINÆ; type, ANGELICACÆ; subtype, ANGELICIDÆ; Burn. Outl. of Bot. v. ii. pp. 614, 770, 773, & 774.

GEN. CHAR. *Flowers* (fig. 1.) white or greenish, uniform; those in the disk of the umbel frequently sterile. *Calyx* obsolete, or bluntly toothed. *Corolla* (see fig. 1.) of 5, roundish, entire, petals, with a narrow, incurved point. *Filaments* (see fig. 1.) 5, thread-shaped, spreading, longer than the corolla. *Anthers* roundish. *Germen* (see fig. 1.) inferior, egg-shaped, striated. *Styles* (see f. 1.) 2, very short and thick, divergent, each with a short, conical, rather crenulated base (stylopodium). *Stigmas* blunt. *Fruit* (fig. 3.) egg-shaped, contracted at the sides, nearly double. *Carpels* (see fig. 4.) with 5, equal, slender *ridges*, of which the lateral ones form a margin. *Channels* with single *vittæ*. *Seeds* gibbous, convex, flattish in front. *Universal involucrum* of few leaves; *partial involucrum* of many.

The nearly obsolete *calyx*; the roundish *petals* with a narrow, inflexed point; the egg-shaped, nearly double *fruit*; and the *carpels* with 5 slender *ridges*, and a single *vitta* in each *channel*; will distinguish this from other genera in the same class and order.

Two species British.

PETROSELI'NUM SE'GETUM. Corn Parsley. Corn Honewort.

SPEC. CHAR. Root-leaves pinnated; leaflets roundish egg-shaped, lobed, cut, and serrated; upper leaves with strap-shaped, very imperfect leaflets. Rays of the Umbel few and unequal. Involucrum of 2 or 3 leaves.

Koch, Umb. p. 128. *fide Don.*—Lind. Syn. p. 123.—Hook. Brit. Fl. p. 128.—Macr. Man. Brit. Bot. p. 97.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 280.—Bab. Fl. Bath. p. 21.—Irv. Lond. Fl. p. 235.—*Sison ségetum*, Linn. Sp. Pl. p. 362.—Engl. Bot. t. 228.—Jacq. Hort. Vind. v. ii. p. 63. t. 134.—Huds. Fl. Angl. (2nd edit.) p. 120.—Willd. Sp. Pl. v. i. pt. II. p. 1436.—Sm. Fl. Brit. v. i. p. 316; Engl. Fl. v. ii. p. 61.—With. (7th edit.) v. ii. p. 380.—Sibth. Fl. Oxon. p. 97.—Abbot's Fl. Bedf. p. 63.—Purt. Midl. Fl. v. i. p. 151.—Relh. Fl. Cant. (3rd edit.) p. 119.—Hook. Fl. Scot. p. 91.—Rev. G. E. Smith's Pl. S. Kent, p. 17.—Fl. Dev. pp. 51 & 167.—Walker's Fl. Oxf. p. 79.—Irv. Lond. Fl. p. 195.—*Sium segetum*, De Cand. Fl. Gall. p. 355.—Gray's Nat. Arr. v. ii. p. 506.—*Sium arvense sive segetum*, Ray's Syn. p. 211.—Blackst. Sp. Bot. p. 91.—*Selinum sii folii*; J. GOODYER, in Johnson's Gerarde, p. 1018.

Fig. 1. A separate Flower.—Fig. 2. A Petal.—Fig. 3. A Fruit.—Fig. 4. A Fruit cut transversely, showing the single vittæ.

* From *petros*, Gr. a *rock*; and *selinon*, Gr. *parsley*; it being a native of stony or rocky places.

† See folio 48, note †. ‡ See folio 235, *a*.

Localities.—In rather moist fields, and on ditch-banks, on a calcarious soil. —*Oxfordshire;* South Leigh: Dr. Sibthorp. Fields on the East side of the Peat-bogs going from Bullington-green to Cheyney-lane, on the North side of Cowley Marsh; near the copse on the South side of Shotover Hill; on the Banbury road near the 5th milestone from Oxford; also between Summer's Town and Kidlington Toll-gate; and road-side near Elsfield: W. B.—*Berks;* Near Botley, on the road to Ensham: W. B.—*Beds;* Goldington, and Clapham: Rev. C. Abbot.—*Bucks;* Near Eton: Mr. Gotobed.—*Cambridgesh.* Madingley Road, near Cambridge; Haddenham: Rev. R. Relhan. By a little stream on the right of the foot-path to Coton; and in several places in the first mile of Barton Road: N. B. G.—*Devon;* Chudleigh; Ashburton; Ilsington; and Lympstone: *Fl. Devon.* Hedges near Plymouth: N. B. G.—*Dorset;* Langton cornfield near Blandford: Dr. Pulteney. East side of the Backwater near Weymouth: Rev. A. Bloxam.—*Essex;* About Walthamstow; Chingford; Gray's Thurrock; South End; and elsewhere: Mr. E. Foster, jun. On a bank in Hagger Lane at the end of Hale-end Lane, Walthamstow: L. W. Dillwyn, Esq.—*Gloucestersh.* Near Bristol: Miss Wonsley, in N. B. G.—*Hants;* About Maple-Durham: Mr. John Goodyer, in *Gerarde's Herbal.*—In one of the little planted inclosures, near the Beech, between Southampton and Netley; and near Ryde: N. B. G.—*Kent;* Near Northfleet: Blackstone. About half a mile from New Romney on the road to Rye: Mr. J. Woods, jun. Near Ewell: E. Jacob, Esq. Wouldham: J. N. Winch, Esq. Between Greenwich and Woolwich: Mr. D. Cooper.—*Middlesex;* By the road-side at Eaton: Mr. Martyn.—*Norfolk;* At Binham: Mr. Crowe. Hedge adjoining a public-house at Acle, by the Dam: Mr. Wigg.—*Northamptonsh.* In Oxenden, on a bank on the North side of the street, a little above the White Horse Inn: Morton. Near Kelmarsh: Mr. Hanbury.—*Somersetshire;* At Swainwtick: Mr. Bamington. Wembdon, and Stoke-courey: Mr. J. C. Collins, in N. B. G.—*Surrey;* Coulsdon: Mr. E. Wood. Between Esher and West Moulsey: Sir W. J. Hooker. Road-side up Forest Hill: Mr. D. Cooper. Fields beyond Duppa's Hill, Croydon; and at Battersea: Mr. W. Pamplin, jun.—*Sussex;* On the Downs; and on the Coast: W. Borrer, Esq. Near Winchelsea, on the road to Rye: N. J. Winch, Esq.—Between Bognor and Little Hampton: Sir W. J. Hooker.—In *Warwickshire:* Rev. W. T. Bree.—*Worcestersh.* On a hedge-bank between Hanbury and Droitwich; and at Badsey: T. Purton, Esq.—*Yorkshire;* Common near Hull: Rev. J. Dalton.—SCOTLAND. *Inverness-shire;* Grass-field in the Isle of Tirey: Dr. Walker.

Annual, or often Biennial.—Flowers in July and August.

Root small, tapering, very tough. *Stem* from a foot to 18 inches high, very much branched, round, striated, slender, rush-like, somewhat leafy; branches spreading in every direction. *Leaves* pinnate, on long petioles; those from the root long and narrow, consisting of from 7 to 19, nearly sessile, roundish egg-shaped, smooth, serrated, cut, often somewhat lobed, leaflets; *Stem-leaves* few, the upper ones with strap-shaped, very imperfect, leaflets. *Universal Umbels* of few (often only 2 or 3) very unequal *rays*, with an *involucrum* of about 2 leaves. *Partial Umbels* drooping, each of a few extremely unequal *rays*, with an *involucellum (partial involucrum)* of 4 or 5, spear-shaped, or awl-shaped, leaves. *Flowers* very small, regular, white, or flesh-coloured. *Calyx* of 5, minute, bluntish teeth. *Corolla* of 5, very small, egg-shaped, strongly involute petals. *Stamens* with purplish *anthers*. *Styles* extremely short, each with a broad, pale, depressed base. *Fruit* egg-oblong, crowned with the very short *styles*, and spreading blunt *stigmas*. *Carpels* (*seeds*, Sm.) oblong, strongly ribbed, with small intermediate ribs alternate with the three principal ones.

Mr. Don observes, that the flowers and fruit agree with the rest of the genus *Petroselinum*, but that the habit is that of *Pimpinélla*. The fruit is aromatic and pungent, as is the whole plant in some degree.—The other British species is *P. sativum*, or *Common Garden Parsley;* distinguished from this by the doubly pinnated root-leaves, and the many-rayed umbels.



Andromeda polifolia. Marsh Andromeda ♄

Russell Del. Publd by W. Baxter, Botanic Garden, Oxford 1840. Mathews Sc

ANDRO'MEDA*.

Linnean Class and Order. DECA'NDRIA†, MONOGY'NIA.

Natural Order. ERI'CEÆ, *Brown's* Prod. p. 557.—Lindl. Syn. p. 172.; Introd. to Nat. Syst. of Bot. p. 182.—Loud. Hort. Brit. p. 523.—Mack. Fl. Hibern. p. 179.—Hook. Brit. Fl. (4th ed.) p. 411.—ERICA'CEÆ; subtribe, ANDROME'DEÆ, Don's Gen. Syst. of Gard. and Bot. v. iii. pp. 785 & 787.—Loud. Arb. et Frutic. Brit. pp. 1076 and 1077.—ERICINEÆ, Rich. by Macgilliv. p. 450.—ERICÆ, Juss. Gen. Pl. p. 159.—Sm. Gr. Bot. p. 115.—SYRINGALES; subord. ERICOSÆ; sect. ERICINÆ; type, ERICACEÆ; subtype, ERICIDÆ; Burn. Outl. of Bot. v. ii. pp. 900, 937, 944, 946, & 948.—BICORNES, *Linn.*

GEN. CHAR. *Calyx* (see fig. 1, *a.*) inferior, small, coloured, of 1 sepal, in 5 deep, egg-shaped, pointed segments, permanent. *Corolla* (see fig. 1, *b.*) of 1 petal, globose, or egg-shaped, with a contracted, 5-toothed mouth (see fig. 2). *Filaments* (see figs. 3 & 4.) 10, awl-shaped, upright, shorter than the corolla, slightly attached to its base. *Anthers* incumbent, of 2 short cells, opening by two terminal pores, surmounted by a pair of horns. *Germen* (see fig. 5.) roundish, with 5 furrows. *Style* (see fig. 5.) terminal, cylindrical, longer than the stamens, permanent. *Stigma* blunt, notched. *Capsule* (see fig. 6.) superior, roundish, with 5 angles, 5 cells, and 5 valves, with the dissepiments (partitions) from the middle of the valves (see fig. 7). *Seeds* (fig. 8.) numerous, minute, elliptical, compressed, polished, with a lateral, strap-shaped hilum.

The small, 5-toothed *calyx;* the monopetalous, globose, or egg-shaped *corolla,* with a 5-toothed, reflexed limb; and the 5-celled, 5-valved *capsule,* with numerous, minute *seeds;* will distinguish this genus from others in the same class and order.

One species British.

ANDRO'MEDA POLIFO'LIA. Polium-leaved Andromeda. Marsh Andromeda. Wild Rosemary. Poly Mountain. Marsh Cistus. Moorwort. Marsh Holy Rose.

SPEC. CHAR. Leaves alternate, oblong, their margins revolute; glaucous beneath. Segments of the calyx egg-shaped, spreading, white, sometimes tipped with red. Corolla egg-shaped, flesh-coloured, or pale red.

Engl. Bot. t. 713.—Linn. Fl. Lapp. (2nd ed.) p. 131. t. 1. f. 2.; Sp. Pl. p. 564.—Huds. Fl. Angl. (2nd ed.) p. 176.—Willd. Sp. Pl. v. ii. pt. 1. p. 610.; var. *media.*—Sm. Fl. Brit. v. ii. p. 441.; Engl. Fl. v. ii. p. 251.—With. (7th ed.) v. ii. p. 520.—Gray's Nat. Arr. v. ii. p. 399.—Lindl. Syn. p. 173.—Hook. Brit. Fl. p. 188.—Macr. Man. Brit. Bot. p. 150.—Lightf. Fl. Scot. v. i. p. 214.—Purt. Midl. Fl. v. iii. p. 35.—Hook. Fl. Scot. p 125.—Winch's Fl. of Northumbl. and Durh. p. 27.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 829.—Loud. Arb. et Frutic. Brit. p. 1106,

Fig. 1. A Flower; *a.* the calyx; *b.* the corolla.—Fig. 2. Front view of a Flower.—Fig. 3. Corolla opened to show the 10 stamens.—Fig. 4. A single Stamen.—Fig. 5. Germen, Style, and Stigma.—Fig. 6. Capsule.—Fig. 7. A separate valve of ditto, *a little magnified.*—Fig. 8. A Seed.

* So named by LINNÆUS, in allusion to the story of ANDROMEDA, who was chained to a rock, and exposed to the attacks of the monsters of the ocean; so does this beautiful tribe of plants grow in dreary and northern wastes, in the midst of swamps, and loathsome reptiles.

† See folio 37, note †.

with a figure.—Walker's Fl. of Oxf. p. 304.—Irv. Lond. Fl. p. 245.—Mack. Catal. Pl. of Irel. p. 39.; Fl. Hibern. p. 179.—*Ledum palustre nostras, arbuti flore*, Ray's Syn. p. 472.—Blackst. Sp. Bot. p. 44.

Localities.—In mossy bogs in the mountainous parts of England and Ireland, and in the low-lands of Scotland.—*Bucks;* On Iver Heath: Mr. J. Rayer.—*Cheshire;* Moors and bogs, frequent: Mr. Bradbury. Moors near Stockport: Mr. L. Howard.—*Cumberland;* Kirkland; Cross Fell; Keswick; and Brampton: Hutchinson. Moss near Bromfield: Rev. J. Dood. Monrs near Latrigg: N. J. Winch, Esq.—*Lancash.* On Causeway Moss, and Rusland Moss, Furness Fells: Mr. Jackson. In Middleton Moss near Lancaster: Mr. Lawson. On the Mossy Moor near Ashton: Mr. O. Sims. "From 18 to 24 inches on Woolston Moss near Warrington:" J. E. Bowman, in N. B. G. On Mosses near Warrington: G. Crosfield, Esq.—*Norfolk;* Peat-bogs, Larlingford: Sir W. J. Hooker.—*Northumberl.* On the heathy part of Prestwick Carr, and on the Muckle Moss north of the Roman Wall and west of Shewing Shields; also on the Wallington Moors: N. J. Winch, Esq. On Green Leighton Moss, and at Dardon Lough: Miss Emma Trevelyan. Near Haltwhistle: Mr. John Thompson.—*Shropsh.* Birch Bog, near Ellesmere, plentifully: Dr. Evans. Whixal Moss: Rev. A. Bloxam.—*Somersetsh.* Near the beginning of the Mendip Hills from Bath: Mr. Hill, in *Blackst. Sp. Bot.* On Glastonbury and Burtle Turf Moors: Sir T. G. Cullum.—*Staffordsh.* On Charlton Moss: Mrs. Acland. Chartley Moss: G. Howitt, Esq. in N. B. G. —*Westmoreland;* Frequent on Peat-bogs in this county: Hudson. On Brigsteer Moss near Kendal: Mr. Lawson.—*Yorksh.* Bogs near Howden: Teesdale. About Halifax: Mr. Crowe. Hills above Keighley, and abundantly on all the ridge mountains, which separate Yorkshire from Lancashire: Mr. Knowlton. Black Moor, near Leeds: Rev. W. Wood. Potteric Car, near Doncaster: M. N. H. Richworth Moor, ten miles from Halifax: N. J. Winch, Esq. Thorn Monr: Mr. Robson. Helwith Moss, and Settle, Craven: Rev. E. F. Witts.—WALES. In *Denbighshire*, and *Glamorganshire*.—SCOTLAND. In *Dumfries, Kirkcudbright, Perth, Renfrew, Stirling*, and *Wigton:* N. B. G.—IRELAND. Peat-bogs in many parts of the country: Mr. Mackay.

Shrub.—Flowers from May to September.

An elegant little *shrub*, from 6 to 8 or 10 inches high. *Stem* smooth, somewhat decumbent at the base, then upright branched and leafy. *Leaves* irregularly scattered, on very short petioles, oblong, pointed, various in breadth, rigid, their margins strongly revolute; of a dark green on the upper surface, very glaucous, with a prominent rib beneath. *Stipulas* none. *Peduncles* from the summits of the branches, single-flowered, white or reddish, occasionally solitary, but usually 3, 4, or more together, with small bracteas. *Calyx* white, tipped with red, or sometimes entirely red. *Corolla* egg-shaped, or nearly globular, of a delicate pale pink, or flesh-colour. *Capsule* upright.

Several varieties of this very pretty little shrub are cultivated in our gardens; two only of which have, I believe, been found wild in Britain, namely, var. *α. latifolia*, and var. *β. media*, of Willdenow's Sp. Pl. The latter is the common one, the localities of which are given above. The variety *latifolia* has only one English station given for it, namely, near Bridgewater, Somersetshire, where it was discovered by W. C. Trevelyan, Esq. growing to the height of 1 or 2 feet. Mr. Mackay and Mr. Templeton have observed it in Ireland, between Newport and Castleconnel, county of Limerick; and near Grey Abbey, county of Down. It is a native of North America.

Dr. Withering says, "a very judicious Botanist suspects that the representation in 'English Botany' was taken from a specimen of *A. polifolia γ. angustifolia*, of Willdenow, a Labradorian plant."

The drawing for the accompanying plate was made from a native specimen, kindly communicated to me from the neighbourhood of Haltwhistle, by Mr. J. Thompson, Crowhall Mill, near Haydon Bridge, Northumberland, Sept. 3, 1839.

The plant has been used instead of nut-galls. Its decoction, according to Gmelin, is inebriating; and in Siberia it is resorted to as the source of an exhilarating beverage.

For an interesting account of this charming little shrub, and the reasons for the application, by Linnæus, of the name of Andromeda to the genus, see Sir J. E. Smith's translation of Linnæus's *Lapland Tour*, v. i. p. 188; and Loudon's *Arb. et Frutic. Brit.* p. 1105.



Erodium moschatum Musky Storks-bill ☉

Mathews Del. & Sc. Pub.d by W. Baxter Botanic Garden Oxford 1840

ERO'DIUM*.

Linnean Class and Order. MONADE'LPHIA†, PENTA'NDRIA.

Natural Order. GERANIA'CEÆ, *De Cand.* Fl. Fr. v. iv. p. 828.—Lindl. Syn. p. 56.; Introd. to Nat. Syst. of Bot. p. 139.—Rich. by Macgilliv. pp. 474 & 475, (Tribe 5.)—Loud. Hort. Brit. p. 506.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 713.—Hook. Brit. Fl. (4th ed.) p. 402.—Mack. Fl. Hibern. p. 54.—GERANIA, Juss. Gen. Pl. p. 268.—Sm. Gram. of Bot. p. 147.—ROSALES; suborder, RHŒADOSÆ; sect. GRUINÆ; type, GERANIA'CEÆ; Burn. Outl. of Bot. v. ii. pp. 614, 784, 808, & 813.—GRUINALES, *Linn.*

GEN. CHAR. *Calyx* (see fig. 5.) inferior, of 5 egg-shaped, glandular, pointed, concave, permanent sepals, equal and uniform at the base. *Corolla* (fig. 1.) of 5 inversely egg-shaped, spreading petals, rather longer than the calyx, generally somewhat irregular. *Nectaries* (see figs. 2 & 3.) 5 glands, alternate with the petals. *Filaments* (see figs. 2 & 3.) 10, awl-shaped, united by their base into a cup; 5 of them perfect, nearly as long as the petals; the alternate 5 shorter and abortive. *Anthers* 5, on the longer filaments only, oblong, versatile. *Germen* (see fig. 4.) superior, roundish, with 5 furrows. *Style* (see fig. 4.) awl-shaped, upright, longer than the stamens, permanent (see fig. 5). *Stigmas* (see fig. 4.) 5, oblong, reflexed. *Fruit* beaked, separating into 5, 1-seeded *capsules* (see fig. 5.), each with a long *awn*, bearded on the inside, and at length spirally twisted, adhering by their points to the top of the style (see figs. 5 & 6). *Seeds* vertical, egg-oblong.

The single *style;* and the beaked *fruit*, of 5 aggregate *capsules*, each tipped with a spiral *awn*, bearded on the inside; will distinguish this from other genera in the same class and order.

Three species British.

ERO'DIUM MOSCHA'TUM. Musky Heron's-bill. Musky Stork's-bill. Muscovy. Moschata. Pick-needle.

SPEC. CHAR. Stems procumbent, hairy. Leaves pinnate; leaflets nearly sessile, elliptical, or egg-shaped, unequally cut. Peduncles many-flowered. Perfect Stamens toothed at the base.

Engl. Bot. t. 902.—L'Heritier in Ait. Hort. Kew. (1st ed.) v. ii. p. 414.—Willd. Sp. Pl. v. iii. pt. i. p. 631.—Sm. Fl. Brit. v. ii p. 728.; Engl. Fl. v. iii. p. 230.—With. (7th ed.) v. iii. p. 798.—Gray's Nat. Arr. v. ii. p. 625.—Lindl. Syn. p. 58.—Hook. Brit. Fl. p. 310.—Macr. Man. Brit. Bot. p. 43.—Davies' Welsh Bot. p. 66.—Purt. Midl. Fl. v. i. p. 316.—Grev. Fl. Edin. p. 148.—Fl. Devon. pp. 115 & 180.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 722.—Walker's Fl. of Oxf. p. 198.—Bab. Fl. Bath., Supp. p. 72.—Irv. Lond. Fl. p. 173.—Mack. Catal. Pl. Irel. p. 63; Fl. Hibern. p. 57.—*Gerdnium moschátum*, Johnson's Gerarde, p. 941.—Ray's Syn. p. 358.—Linn. Sp. Pl. p. 951.—Jacq. Hort. Vind. v. i. t. 55.—Deer. Catal. Stirp. Nott. p. 90.—Huds. Fl. Angl. (2nd ed.) p. 300.—With. (5th ed.) v iii. p. 751.

LOCALITIES.—In mountainous pastures; rare. — *Oxfordshire;* I have observed it once or twice about Oxford, but in places where it had, no doubt, escaped from gardens: W. B.—*Beds.* On Ampthill Warren.—*Bucks;* On the rubbish near Salt-Hill.—*Cheshire;* In the lane between Stockport and New

Fig. 1. Corolla.—Fig. 2. Stamens and Pistil.—Fig. 3. Two abortive, and one perfect Stamen, and Gland.—Fig. 4. Germens, Styles, and Stigmas.—Fig. 5. The Calyx; and the 5 Carpels separating from the beak.—Fig. 6. A separate Carpel.

* From *erodios*, Gr. a *heron;* the fruit resembling the beak of that bird.

† See folio 106, note †.

Bridge.—*Cornwall;* Near Penzance; and at Portluney and Carhays.—*Cumberland;* Hedge-bank at Mr. Yates's, Skirwith, Kirkland.—*Derbyshire;* Alfreton.—*Devonshire;* Along the Southern coast. Dawlish; Teignmouth; and Torquay. Bank under a hedge near Upcott; also near Plymouth; and Countless Wear Bridge, near Exeter.—*Essex;* At Dedham. Between Bristol and St. Vincent's Rocks. By the river-side at Bristol; and by the foot-path under St. Vincent's Rocks.—*Kent;* South Kent, probably not native. On Bromley Common.—*Lancashire;* Dry places in the county.—*Norfolk;* In the hedge of a field by a foot-path into Cromer.—*Notts;* Here and there on banks.—*Shropshire;* High road between Shelton and Montford Bridge.—*Somersetshire;* Way-side at Chedder; near Yeovil; Farringdon; and Kingsdown.—*Staffordshire;* Grounds about Dudley Castle.—*Suffolk;* Bradwell Common, doubtful if wild.—*Surrey;* Near Battersea. On Streatham Common; at Bagshot; in the lanes and fields near Windlesham Church; and about Barnes.—*Sussex;* On the rocks, Hastings; and West end of Pulborough.—*Warwickshire;* At Cookhill, on the Ridgeway.—*Westmoreland;* Everywhere in dry pastures of this county.—*Worcestershire;* Near Stourbridge.—*Yorksh.* In Craven; Hornsea; Thorp Arch; and near Scarborough.—WALES. *Anglesea;* Above the beach between Friars and Friars' Beach; and on the side of the post-road between the second and third milestone from Holyhead.—*Pembrokeshire;* By the road-side about a mile from Tenby towards Pembroke.—SCOTLAND. *Haddingtonshire;* Near Prestonpans.—IRELAND. Simmond's Court, near Donnybrook; rocks at Carlingford Castle; near Monkstown Church; and about Cork.—For authorities, see B. G.; and N. B. G.

Annual.—Flowers from May to September.

Root tapering, fibrous, whitish. *Stem* prostrate, sometimes more than 2 feet long, round, and clothed, more or less, with short, white hairs. *Leaves* pinnate, on longish petioles; *leaflets* nearly sessile, opposite and alternate, elliptical, or oblong egg-shaped, unequally serrated and cut, slightly hairy, the terminal one 3-lobed. *Stipulas* rather large, broadly egg-shaped, very thin and membranous. *Peduncles* 2 or 3 inches long, bearing an umbel of from 4 to 10 flowers, on short pedicels, which are clothed with glandular hairs, and accompanied at their base with egg-shaped, membranous *bracteas*. *Calyx* permanent, clothed with short, white, glandular hairs. *Petals* rose-coloured, not spotted, all nearly equal. Abortive *filaments* very broad; anther bearing ones with a tooth on each side near the base (fig. 3). *Glands* 5, green, on the outside of the anther bearing filaments. *Capsules* single-seeded, clothed with strong, yellow hairs.

The whole plant has a powerful musky smell, in which, and in the larger, paler, and much less deeply-cut leaflets, it differs from *Erodium cicutarium*, a species to which it is nearly akin.

For a very interesting account of the beautiful contrivance which nature has provided for the dispersion and protection of the seeds of these plants, and some others of the same order, see WITHERING'S *Botanical Arrangement of British Plants*, and JOHNSTON'S *Flora of Berwick-upon-Tweed*, v. i. p. 150.

The *Natural Order* GERANIA'CEÆ consists of *herbs* or *shrubs*, without *tendrils*. Their *leaves* are opposite at the joints, or alternate, and then opposite the peduncle. They have a *calyx* of 5 permanent *sepals*, which are imbricated in the bud. Their *corolla* consists of 5 *petals*. Their *stamens* are generally monadelphous, and twice as many as there are petals, some of them occasionally abortive. The *ovary* is 5-lobed, and terminated by a long thick beak (*torus* or *gynobase*), and 5 *stigmas*. The *capsules* (*carpels*) are 5, each 1-celled, and 1-seeded, eventually separating from the base of the beak, together with a long elastic awn (the *style*). The *seed* is solitary, without *albumen;* with a curved *embryo;* and foliaceous, convolute, and plaited *cotyledons*.



Melilotus officinalis. Common Melilot. ♂

Russell Del. Pub.d by W. Baxter, Botanic Garden, Oxford 1820. Mathews Sc.

MELILO'TUS *.

Linnean Class and Order. DIADE'LPHIA †, DECA'NDRIA.

Natural Order. LEGUMINO'SÆ, Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259.—Loud. Hort. Brit. p. 509.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—LEGUMINA'CEÆ, Loudon's Arb. Brit. p. 561.—PAPILIONA'CEÆ ‡, *Linn.*—ROSALES; sect. CICERINÆ; subsect. LOTIANÆ; type, LOTACEÆ; subtype, LOTIDÆ; Burn. Outl. of Bot. pp. 614, 638, 642, & 644.

GEN. CHAR. *Calyx* (fig. 1, *a.*) inferior, tubular, 5-toothed, permanent. *Corolla* (fig. 1, *b.*) papilionaceous, of 4 distinct, deciduous petals; standard (fig. 2.) reflexed; wings (fig. 3.) oblong, shorter than the standard; keel of 1 petal, rather shorter than the wings. *Filaments* (fig. 4.) 10, 9 in one split compressed tube; the tenth hair-like, and distinct. *Anthers* roundish. *Germen* (fig. 5.) egg-oblong. *Style* awl-shaped, curved upwards. *Stigma* simple, smooth. *Legume* (figs. 5 & 6.) longer than the calyx, coriaceous, 1- or few-seeded, hardly dehiscent, of various forms. *Seeds* roundish, smooth.

Distinguished from other genera, with diadelphous stamens, in the same class and order, by the 1-celled, 1- or few-seeded, indehiscent *legume*, longer than the *calyx;* the awl-shaped *style* with a simple, smooth *stigma;* the distinct *petals;* and the racemose *inflorescence.*

It differs from the genus *Trifolium* in the flowers being produced in a loose raceme, not in a head or close spike; and in the *legume* being longer than the calyx, not shorter. See folio 283.

Two species British.

MELILO'TUS OFFICINA'LIS. Officinal Melilot. Common Yellow Melilot. Plaster Clover. King's Clover. Hart's Clover.

SPEC. CHAR. Stem upright. Racemes loose. Corolla more than twice as long as the calyx. Petals nearly equal in length. Legumes 2-seeded, egg-shaped, wrinkled.

Pers. Syn. Pl. v. ii. p. 348.—Gray's Nat. Arr. v. ii. p. 603.—Lindl. Syn. p. 79.—Hook. Brit. Fl. p. 327.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 177.—Maer. Man. Brit. Bot. p. 53.—Winch's Fl. of Northumberl. and Durh. p. 49.—Lindl. Fl. Med. p. 240.—Bab. Fl. Bath. p. 12.—Dick. Fl. Abred. p. 48.—Irv. Lond. Fl. p. 178.—Luxf. Reig. Fl. p. 64.—Mack. Fl. Hibern. p. 76.—*Melilótus vulgáris,* Ray's Syn. p. 331.—Deer. Cat. Stirp. Nott. p. 142.—Warn. Pl. Woodf. p. 97.—Jacob's Pl. Faversh. p. 67.—*Trifólium officinále,* Engl. Bot. t. 1340.—Sm. Fl. Brit. v. ii. p. 781.—Willd. Sp. Pl. v. iii. pt. II. p. 1355.—Sm. Engl. Fl. v. iii. p. 297.—With. (7th ed.) v. iii. p. 852.—Davies' Welsh Bot. p. 70.—Relh. Fl. Cant. (3rd ed.) p. 298.—Hook. Fl. Scot. p. 217.—Grev. Fl. Edin. p. 159.—Fl. Devon. pp. 123 & 176.—Johnst. Fl. Berw. v. i. p. 162.—Walker's Fl. of Oxf. p. 212.—Perry's Pl. Varvic. Sel. p. 62.—Mack. Catal. Pl. Ircl. p. 67.—*Trifólium Melilótus*

Fig. 1. A separate Flower; *a.* Calyx; *b.* Corolla.—Fig. 2. Standard.—Fig. 3. One of the Wings.—Fig. 4. Stamens.—Fig. 5. Unripe Legume.—Fig. 6. Ripe ditto.—Fig. 7. A Seed.

* From *mel, honey;* and *lotus,* the genus so called. HOOKER. See t. 219.

† See fol. 77, note †. ‡ See fol. 117, note ‡.

officindlis, Linn. Sp. Pl. p. 1078.—Mart. Fl. Rust. t. 72.—Huds. Fl. Angl. (2nd ed.) p. 323.—Lightf. Fl. Scot. v. i. p. 402.—Sibth. Fl. Oxon. p. 227.—Abbot's Fl. Bedf. p. 161.—Purt. Midl. Fl. v. i. p. 316.—Sinel. Hort. Gram. Woburn. (3rd edit.) p. 393.

Localities.—In thickets, hedges, way-sides, and borders of fields; sometimes among corn.

Annual.—Flowers in June and July.

Root tapering, strong, and somewhat woody. *Stem* 2 or 3 feet high, upright, branched, leafy, angular, furrowed, smooth; branches much spreading. *Leaves* alternate, petiolated, smooth, of 3, inversely egg-shaped, or oblong-wedge-shaped, sharply serrated, dark green *leaflets;* the partial stalk of the middle one rather the longest. *Stipulas* spear-shaped, the upper ones entire; the lower sometimes with 2 or 3 awl-shaped teeth. *Racemes (clusters)* two inches or more in length, on long, axillary peduncles. *Flowers* numerous, on short, slender pedicels, all drooping to one side. *Calyx* about one-third the length of the corolla, divided about half way down into 5, nearly equal, pointed teeth. *Corolla* yellow; standard (vexillum) striated with brown, keeled, a little longer than the other petals, notched, and but slightly reflexed; wings as long as the keel. *Style* thread-shaped. *Stigma* bluntish. *Legume (pod)* pendulous, 2-seeded, elliptical, transversely wrinkled, somewhat hairy, at length blackish, and rather gibbous. *Seeds* unequally heart-shaped.

The whole plant has a peculiar scent, which becomes more fragrant in a dry state, then having some resemblance to that of new hay, or that of *Anthoxanthum odoratum*, t. 99. The flowers are sweet-scented; a water distilled from them possesses little odour in itself, but improves the flavour of other substances. The flowers and seeds are said to be the chief ingredients in flavouring the Gruyère cheese. This cheese, Mr. Don says, no doubt owes its excellence to the mixture of herbs in the mountain pasturage, which surrounds the valley of Gruyère in Switzerland, but more particularly to the flowers and seeds of this plant, which are bruised and mixed with the curd before it is pressed. In medicine the plant was esteemed emollient and digestive, and was used in fomentations and cataplasms, particularly in blister plasters, but it is now laid aside, as being more acrid and irritating than emollient. Notwithstanding the strong smell of the plant, and its bitter acrid taste, it does not appear to be disagreeable to any kind of cattle; and horses are said to be extremely fond of it; hence it is called by some Italian writers *Trifolium caballinum*. Professor Martyn observes, that there cannot be a worse weed among bread-corn, for a few of the seeds, ground with it, spoil the flour, by communicating the peculiarly strong taste of the plant, so as to render it unfit for making bread.

Dr. Lindley states, in his excellent "Flora Medica," p. 240, that the odoriferous principle of this plant is very fugacious; and was asserted by Vogel to be benzoic acid, but that according to Guibourt, and others, it is *Coumarine*, the aromatic principle of the *Tonka Bean*.

Melilot does not appear to have been cultivated in England; but, in a wild state, it occurs, more or less common, in most counties. I have observed it in the following places near Oxford, namely, Marston-lane, in 1827; between South Hinksey and Childswell Farm; and in Cowley-field, in 1831; abundant in a copse just beyond Botley-Pound going to Ensham; and in hedges and on the borders of fields between Cassington and Church Handborough, July 1, 1833. Dr. Sibthorp records it as growing in the lane going to Binsey. Mr. Sinclair says, that in very exposed situations it attains only to a small size, while in such as are much sheltered, he has found it exceed six feet in height. Dr. Johnston remarks, that in the neighbourhood of Berwick-upon-Tweed, the flowers are most frequently of a greenish-white colour, and smaller than usual.

The white-flowered variety mentioned by Withering, is the *Melilotus leucantha* of Hooker's *British Flora*.



Sedum acre. Biting Stonecrop. 2

Ivy Bell. Del. Pub.d by W. Baxter, Botanic Garden, Oxford 18 Rhodes Sc.

SE'DUM*,

Linnean Class and Order. DECA'NDRIA†, PENTAGY'NIA.

Natural Order. CRASSULA'CEÆ, *De Cand.*—Lindl. Syn. p. 63.; Introd. to Nat. Syst. of Bot. p. 161.—Rich. by Macgilliv. p. 514.—Loud. Hort. Brit. p. 516.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 97.—Mack. Fl. Hibern. p. 59.—CRA'SSULÆ, Juss. Dict. des. Sc. Nat. v. xi. p. 369.—SUCCULE'NTÆ, *Linn.*—Vent. Tabl. v. iii. p. 271.—SEMPERVIVÆ, Juss. Gen. Pl. p. 307.—Sm. Gram. of Bot. p. 162.—ROSALES; sect. CRASSULINÆ; type, CRASSULACEÆ; Burn. Outl. of Bot. v. ii. pp. 614, 730, & 735.

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 1 sepal, in 5 deep, egg-shaped, pointed, usually turgid, permanent segments, often resembling the leaves. *Corolla* (see fig. 2.) of 5 spear-shaped, pointed, flat, generally spreading petals. *Nectary* (see fig. 5, *a.*) a minute scale, at the base of each germen, on the outer side. *Filaments* (see fig. 2.) 10, awl-shaped, spreading. *Anthers* roundish. *Germens* (fig. 3.) 5, oblong, each tapering into a short spreading *style*. *Stigmas* bluntish. *Capsules* (fig. 4.) 5, compressed, pointed, spreading, notched towards the base, bursting along the inner margin. *Seeds* (fig. 6.) numerous, minute, arranged along the inner margin, at each side.

The deeply 5-cleft *calyx;* the *corolla* of 5 petals; and the 5 *capsules*, each with a nectariferous scale at its base; will distinguish this from other genera in the same class and order.

Eleven species British.

SE'DUM ACRE. Acrid Stonecrop. Biting Stonecrop. Wall-pepper. Stone-hot. Pricket. Mouse-tail. Country Pepper. Jack of the Buttery.

SPEC. CHAR. Leaves alternate, nearly egg-shaped, uprightish, smooth, gibbous, fleshy, spurred at the base. Cymes trifid, smooth, leafy. Flowers of a golden-yellow, sessile along the branches of the cyme.

Engl. Bot. t. 839.—Curt. Fl. Lond. t. —Woodv. Med. Bot. t. 231.—Linn. Sp. Pl. p. 619.—Huds. Fl. Angl. (2nd edit.) p. 196. var. *a.*—Willd. Sp. Pl. v. ii. pt. i. p. 767.—Sm. Fl. Brit. v. ii. p. 487.; Engl. Fl. v. ii. p. 317.—With. (7th edit.) p. 558.—Gray's Nat. Arr. v. ii. p. 541.—Lindl. Syn. p. 64.—Hook. Brit. Fl. p. 210.—Macr. Man. Brit. Bot. p. 88.—Lightf. Fl. Scot. v. i. p. 235.—Sibth. Fl. Oxon. p. 144.—Abb. Fl. Bedf. p. 99.—Thornt. Fam. Herb. p. 462, with a figure.—Davies' Welsh Bot. p. 43.—Purt. Midl. Fl. v. i. p. 218.—Relh. Fl. Cant. (3rd ed.) p. 181.—Hook. Fl. Scot. p. 140.—Grev. Fl. Edin. p. 101.—Fl. Dev. pp. 76 & 185.—Johnst. Fl. of Berwick, v. i. p. 99.—Winch's Fl. of Northumbl. and Durh. p. 29.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 119.—Walker's Fl. of Oxf. p. 126.—Lindl. Fl. Med. p. 276.—Perry's Pl. Varvic. Selectæ, p. 41.—Bab. Fl. Bath. p. 18.—Dick. Fl. Abred. p. 38.—Irv. Lond. Fl. p. 171.—Luxf. Reig. Fl. p. 40.—Cow. Fl. Guidc, p. 47.—Mack. Catal. Pl. Irel. p. 44.; Fl. Hiberu. p. 61.—*Sedum parvum acre flore luteo*, Ray's Syn. p. 270.—*Vermicularis, sive Illecebra minor acris*, Johnson's Gerarde, p. 517.

LOCALITIES.—On walls, roofs, rocks, and dry sandy ground; common.

Fig. 1. Calyx.—Fig. 2. A Flower.—Fig. 3. Calyx, Pistils, and Nectaries.—Fig. 4. Capsules.—Fig. 5. A separate Germen, with the nectary (*a.*) at its base.—Fig. 6. A Seed.

* From *sedeo*, L. *to sit;* from the humble growth of these plants on their native rocks. HOOKER. † See folio 37, note †.

Perennial.—Flowers in June and July.

Root fibrous, subdivided. *Stems* numerous, rather creeping at the base, entangled, branched; the *branches* 2 or 3 inches high, upright, cylindrical, leafy. *Leaves* sessile, dark green, closely imbricated on the barren branches; scattered on the flowering ones; blunt, convex at the back, flattened above, nearly egg-shaped, fleshy, with a spur at the base. *Flowers* of a golden-yellow, sessile, more or less numerous, growing along the branches of the *cyme*, which is generally trifid. *Petals* spear-shaped, pointed, twice as long as the calyx. *Capsules* membranous.

Whole plant smooth, succulent, and tender, of a grass-green, forming lax wide-spreading tufts, and when extending itself "over the roofs of cottages, or the tops of walls, its golden blossoms," as Dr. Withering observes, "exhibit a gay appearance; and mingled occasionally with the crimson or pearly constellations of its congeners, arrest the attention even of the superficial observer; while to the more scrutinizing eye of the scientific, each individual flower displays a skill, beauty, and contrivance, truly admirable." It is very acrid; and chewed in the mouth has a hot biting taste, whence, and from the common place of its growth, it has the name of *Wall Pepper*. Applied externally it blisters; taken inwardly it excites vomiting. In scorbutic cases, and quartan agues, it is an excellent medicine under proper management. For the former, a handful of the herb is directed to be boiled in eight pints of beer till reduced to four, of which three or four ounces are to be taken every other morniug. Milk has been found to answer this purpose better than beer. Not only ulcers simply scorbutic, but those of a scrofulous or even cancerous tendency, have been cured by the use of this plant.

It continues to grow when hung up by the root, which has been considered as a proof that it receives its nourishment principally from the air; but it is remarked by Dr. Withering, that though the life of the plant be thus retained for some weeks, yet it is at the expence of the juices which its succulent leaves had previously imbibed. At the end of three weeks, a plant, suspended by Mr. Gough of Kendal, before a window with a northern aspect, had lost about half its weight, though it had put out some fine fibres from the root, and had yet life enough to enable it to turn to the light, after having been purposely turned from it. After being kept in water for 24 hours, it regained more than half of what it had lost. Mr. Gough therefore justly considers the succulent leaves as reservoirs, which support the plant in dry weather, and are again replenished in rainy seasons, but does not admit that such plants attract nourishment from the air more than others. It must be allowed, however, that they subsist much upon the humidity of the atmosphere, since their succulent stems and leaves cannot derive much nutriment from the arid soil in which they generally grow.—Goats eat this plant; cows, horses, sheep, and swine refuse it. See Martyn's *Mill. Gard. Dict.*; and Withering's *Bot. Arr.*

A diminutive variety of this plant, (var. *β. diminutum* of Haworth,) much smaller than the species, hardly an inch high, with a creeping stem, a native of the higher Alps of Province, has been found on Swaffan Heath, Norfolk. Don.

The *Natural Order* Crassula'ceæ, to which the present genus belongs, is composed of *herbs* or *shrubs*, with fleshy *leaves*, and no *stipulas*. Their *calyx* consists of from 3 to 20 *sepals*, which are more or less united at the base. Their *corolla* of from 3 to 20 *petals*, inserted (as well as the stamens) at the base of the calyx. Their *stamens* are equal in number with the petals, or twice as many, and then they are frequently alternately shorter and longer. Their *nectaries (glands)* are 5, or obsolete. The *follicles (capsules)* are as many as the petals, 1-celled, tapering into *stigmas*. The *seeds* are attached to the margins of the suture, in two rows; the *embryo* is straight in the axis of the albumen, with the *radicle* pointing to the hilum.

The other British genera belonging to this order, are—1. *Tillæa*. 2. *Cotyledon*. t. 279. 3. *Sempervivum*. 4. *Rhodiola*.



Lathraea squamaria. Greater Tooth-wort. 4

Delin. ad Vivum. Pub.d by W. Baxter Botanic Garden, Oxford. 1810. Mathews Sc.

LATHRÆ'A *.

Linnean Class and Order. DIDYNA'MIA †, ANGIOSPE'RMIA ‡.

Natural Order. OROBA'NCHEÆ, *Juss.*—Lindl. Syn. p. 193.; Introd. to Nat. Syst. of Bot. p. 227.—Rich. by Macgilliv. p. 433.—Loud. Hort. Brit. p. 529.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 627.—Mack. Fl. Hibern. p. 205.—Hook. Brit. Fl. (4th edit.) p. 414.—Akin to PEDICULARES, Juss. Gen. Pl. pp. 99 & 101.—Sm. Gram. of Bot. p. 96.—SYRINGALES; subord. PRIMULOSÆ; sect. MENTHINÆ; type, OROBANCHACEÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, & 960.—PERSONATÆ, *Linn.*

GEN. CHAR. *Calyx* (fig. 1, *b.*) inferior, of 1 sepal, bell-shaped, in 4 deep, upright, nearly equal segments, permanent. *Corolla* (fig. 2.) of 1 petal, tubular, 2-lipped; the upper *lip* concave, cloven or entire; the lower *lip* smaller, spreading, blunt, 3-cleft. *Nectary* (see fig. 3, *a.*) a depressed *gland* at the base of the germen. *Filaments* 4, didynamous, awl-shaped, shorter than the corolla, and concealed by its upper lip. *Anthers* (see fig. 2.) converging, blunt, their lobes pointed beneath. *Germen* (fig. 3, *b.*) roundish, or egg-shaped, compressed. *Style* (fig. 3, *c.*) cylindrical, as long or longer than the stamens. *Stigma* blunt, notched, bent downwards. *Capsule* (figs. 5 & 6.) roundish, blunt, with a point, of one cell, and two membranous elastic valves (fig. 8.), invested with the enlarged inflated calyx. *Placentas (receptacles)* parietal, two to each valve (see fig. 8). *Seeds* (see figs. 8 & 9.) few, globose, rough.

The 4-cleft *calyx;* the *gland* at the base of the germen; and the 1-celled *capsule;* will distinguish this from other genera in the same class and order.—One species British.

LATHRÆ'A SQUAMA'RIA. Scaly-rooted Toothwort §. Greater Toothwort. Clown's Lungwort.

SPEC. CHAR. Flowering branches upright, quite simple. Flowers somewhat pendulous, in 1-sided, spike-like racemes; lower lip of the corolla in 3 lobes.

Engl. Bot. t. 50.—Fl. Dan. t. 136.—Linn. Sp. Pl. p. 844.—Huds. Fl. Angl. (2nd edit.) p. 266.—Willd. Sp. Pl. v. iii. pt. 1. p. 201.—Sm. Fl. Brit. v. ii. p. 654.; Engl. Fl. v. iii. p. 127.—With. (7th ed.) v. iii. p. 731.—Lindl. Syn. p. 194.—Hook. Brit. Fl. p. 285.—Macr. Man. Brit. Bot. p. 175.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 634.—Light. Fl. Scot. v. i. p. 326.—Sibth. Fl. Oxon. p. 191.—Abb. Fl. Bedf. p. 136.—Purt. Midl. Fl. v. i. p. 292.; and v. iii. p. 366.—Hook. Fl. Scot. p. 187.—Grev. Fl. Edin. p. 135.—Rev. G. E. Smith's Pl. S. Kent, p. 33. t. 3.—Johnst. Fl. Berw. v. ii. p. 284. t. VIII.—Winch's Fl. of Northumbl. and Durh. p. 41.—Walker's Fl. of Oxf. p. 175.—Linn. Soc. Tr. v. xvi. p. 399. t. 22 & 23.—Bab. Fl. Bath. p. 35.—Irv. Lond. Fl. p. 127.—Luxf. Reig. Fl. p. 54.—Mack. Catal. Pl. of Irel. p. 58.; Fl. Hibern. p. 207.—*Lathræa simplex,* Gray's Nat. Arr. v. ii.

Fig. 1. *a.* A Bractea; *b.* Calyx.—Fig. 2. Corolla.—Fig. 3. *a.* Gland; *b* Germen; *c.* Style.—Fig. 4. Calyx, &c.—Fig. 5. Capsule.—Fig. 6. Same divested of Calyx.—Fig. 7. Transverse section of ditto.—Fig. 8. Capsule opened vertically, showing the 2 valves, the placentas, and the seeds.—Fig. 9. Seeds.—Fig. 10. A Seed magnified.—Fig. 11. Vertical section of the same, showing the Albumen and the Embryo, ditto.—Fig. 12. The Embryo separated, ditto.

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* From *lathraios,* Gr. *hid,* or *concealed;* the plant being much concealed by the earth or dead leaves. HOOKER.

† See folio 31, note †. ‡ See folio 72, note ‡.

§ From the resemblance of the scaly roots to the human fore-teeth, and hence it was fancied formerly to be good for the tooth-ache.

p. 316.—*Anblatum Cordi sive Aphyllon*, Ray's Syn. p. *288.—Jacob's Pl. Fav. p. 6.—*Dentaria major Matthioli*, Johns. Ger. 1585.—Blackst. Sp. Bot. p. 17.

Localities.—In woods and coppices, apparently parasitical on the roots of Hazels, Elms, Beech, and other trees in dry shady places, generally almost covered by the fallen leaves.—*Oxfordshire;* Woodstock Park; and in woods near Ashford Mills: Dr. Sibthorp.—*Beds;* Hedges at Whipsnade, and Studham: Rev. C. Abbot.—*Bucks;* On a hedge-bank near the turnpike-gate at Oak Ends, near Chalfont St. Peter's; April 18, 1835: Mr. J. Siber.—*Cheshire;* In Harnicroft Wood, near Chadkirk: B. G.—*Cumberland;* In a field of Mr. Rede's Hole-house, Baggray; and near Akebank, in the parish of Wigton: B. G.—*Derbysh.* Abundant in the Dell of Calke Abbey Park: Rev. A. Bloxam. Woods behind Saxton's Hotel, Matlock; and woods on the E. side of the river: Mr. O. Jewitt. Pleasly Park: B. G.—In a very thick part of the Chace, near West Lodge, only two plants found; and near Chettle: B. G.—*Durham;* In Shipley; Eglestone; Cocken; and Lumley Woods; near Pierce Bridge; and in Irehope Dene, Weardale: N. B. G. In a wood near Gainford: B. G.—*Gloucestersh.* Leigh Wood, near Bristol: *With. Arr.*—Dowdeswell Wood near Cheltenham: Rev. E. F. Witts.—*Hants;* Longwood: B. G. In the Churchlitten-coppice under some hazels near the foot-bridge, in Trimming's garden hedge; and on the dry wall opposite Grange-yard: *Hist. Selb.*—*Kent;* In a hazel copse below Postling Wood; copse above Hythe; on a ditch-bank at Bredgate near Sittingbourne; in the wood S. from Chiselhurst bog, the end towards the bog on the left hand; in the woods about Maidstone, plentifully; also very abundant in cottage gardens at Chelsfield, a village between Farnborough and Farningham: N. B. G.—*Lancash.* In Deepdale Wood; and in Grisedale, within the Liberties of Yealand: B. G. On a bank under Hazels near Coniston: Miss Susan Beevir; see folio 188, *a.*—*Lincolnsh.* At Exton, near Stamford: N. B. G.—*Middlesex;* Sandy-lane, leading from Harefield town to the river: B. G.—*Northumberland;* Hulne Abbey Woods; in Twizell Woods; at Breakbank near Alnwick; and in the wood bottom at the W. end of the Rectory Dean at Simonburn: N. B. G.—*Notts;* Newstead; Epperstone; Bulwell; and Harlow Wood, near Mansfield: N. B. G. By Hord's Park; Bethal Edge; Colebrook Dale; and shrubbery at Bitterley Court, Ludlow: N. B. G.—*Somersetsh.* In Smallcombe and Wolley Woods; by the hedge on the left hand side of the field by the farm-house on Claverton Down; at Inglishcombe; in Prior Park Grounds; Chapel Wood, Lansdown; and in the wood at Midford Castle: N. B. G.—*Surrey;* In a private garden near Mickleham; 1823: Mr. W. Pamplin, jun. Coulsdon: N. B. G. Fields between Chantry Downs and Salford Turnpike, near Guildford: *Fl. Metr.* On Chapel Farm, right hand of Westhumble Lane near Dorking; and at Chipstead: *Reig. Fl.*—*Sussex;* Biggen-holt Wood near Washington: N. B. G.—*Westmoreland;* In thickets below Conzick Scar near Kendal; and Cunswick Wood: N. B. G.—*Wilts;* Woods at Clarendon: B. G. Near Great Bedwyn: W. Bartlett, Esq.—*Worcestersh.* At the roots of the White Poplar Tree, near Bridgestone Mill, Alfrick; at Great Malvern, under an Elm by the road-side near the turnpike; near Abberly; at the base of the N. hill, Malvern, on the roots of Holly; and in a thick wood on a conglomerate rock near the Teme, on the root of Maple: N. B. G.—*Yorkshire;* Round Howe, and woods W. of Richmond; Limestone tract, near Leeds; Newburgh Woods; on the further E. rocks in the middle fissures above Malham Tarn; near Ripon; Pierce Bridge; woods near Kirkham; Newburgh, Wass, and Byland Woods, near Coxwold; Studley and Mackershaw Woods; Hackfall; Plumpton; and Rokeby, near Greta Bridge: N. B. G. —In WALES, SCOTLAND, and IRELAND; but not common.

Perennial.—Flowers in April.

Root (or more properly, perhaps, subteraneous *stem*) articulated, branched, and covered with imbricated fleshy scales. Flowering *stems* thick, succulent, from 4 to 6 inches, or more, high, tapering upwards, purplish, downy, naked, except perhaps furnished with 1 or 2 egg-shaped scales. *Flowers* in a sort of racemose spike, all leaning to one side, in a double or treble row, each on a short pedicel, with a large, roundish bractea at its base. *Calyx* hairy, whitish. *Corolla* drooping, pale purple, or flesh-coloured, upper lip entire, or sometimes more or less cloven; lower lip 3-lobed. *Anthers* large, hairy. *Style* protuding. *Stigma* dilated. *Germen* smooth. *Capsule* large, thin, crowned with the withered style, and invested with the permanent calyx.



Crepis virens Smooth Hawk's-beard ○

C.Matthews, Del. & Sc. Pub.d by W.Baxter Botanic Garden, Oxford. 1826

CRE'PIS*.

Linn. Class & Order. SYNGENE'SIA†, POLYGA'MIA, ÆQUALIS‡. *Natural Order.* COMPO'SITÆ§, *(Linn.)*, tribe, CICHORA'CEÆ, Lindl. Syn. pp. 140 & 156; Introd. to Nat. Syst. of Bot. pp. 197 and 201.—Loud. Hort. Brit. pp. 520 & 521.—Mack. Fl. Hibern. pp. 142 & 159.—Hook. Brit. Fl. (4th ed.) p. 410.—CICHORA'CEÆ, Juss. Gen. Pl. p. 168.—Sm. Gr. of Bot. p. 120.—SYNANTHE'REÆ, Rich. by Macgilliv. p. 454.—SYRINGALES; subord. ASTEROSÆ; type, CICHORACEÆ; Burn. Outl. of Bot. pp. 900, 901, & 935.

GEN. CHAR. *Involucrum (common calyx)* (fig. 1.) double; outermost (fig. 1, *a.*) very short, lax, tumid, deciduous; inner (fig. 1, *b.*) egg-shaped, simple, furrowed, permanent, of several strap-shaped converging scales. *Corolla* (fig. 2.) compound, of numerous, imbricated, uniform, perfect, strap-shaped, abrupt, 5-toothed *florets* (fig. 3). *Filaments* (see fig. 4, *a.*) 5, hair-like, very short. *Anthers* (fig. 4, *b.*) in a cylindrical tube. *Germen* (fig. 4, *c.*) inversely egg-oblong. *Style* (fig. 4, *d.*) thread-shaped, slightly prominent. *Stigmas* (fig. 4, *e.*) 2, spreading. *Seed-vessel* none, the inner calyx converging, hardened. *Seed* (see figs. 5 & 6.) narrower upwards, striated. *Pappus* (see fig. 5.) hairy, copious, soft, mostly white, deciduous. *Receptacle* (see fig. 6, *a.*) naked.

Distinguished from other genera with uniform strap-shaped florets in the same class and order, by the *involucrum* with scales at its base; the pointed, striated *seed*, narrower upwards; the hairy, copious, mostly white, deciduous *pappus;* and the naked *receptacle.*

Five species British. See HOOK. *Brit. Fl.* (4th ed.) p. 291.

CRE'PIS VI'RENS. Green Crepis. Smooth Hawk's-beard. Succory Hawkweed. Yellow Succory.

SPEC. CHAR. Leaves smooth, runcinate; the upper ones strap-arrow-shaped, stem-clasping, their margins flat. Stem smooth, panicle somewhat corymbose. Seed oblong, shorter than the pappus, which latter is almost as long as the involucrum.

Crepis virens, Linn.—BABINGTON in Tr. Linn. Soc. v. xvii. p. 453.—Linn. Sp. Pl. 1134.—De Cand. Fl. Fr. vol. v. p. 447.; Bot. Gal. v. i. p. 299.—Hook. Brit. Fl. (4th edit.) p. 291.—Mack. Fl. Hibern. p. 161.—*Crepis tectorum*, Huds. Fl. Angl. (1st edit.) p. 301.—Engl. Bot. t. 1111.—Curt. Fl. Lond. t. 327.—Sm. Fl. Brit. v. ii. p. 837.; Engl. Fl. v. iii. p. 372.—With. (7th ed.) v. iii. p. 900.—Gray's Nat. Arr. v. ii. p. 425.—Lindl. Syn. p. 158.—Hook. Brit. Fl. p. 347.—Macr. Man. Brit. Bot. p. 143.—Lightf. Fl. Scot. v. i. p. 440.—Sibth. Fl. Oxon. p. 240.—Abb. Fl. Bedf. p. 172.—Davies' Welsh Bot. p. 75.—Purt. Midl. Fl. v. ii. p. 375.—Relh. Fl. Cant. (3rd edit.) p. 323.—Hook. Fl. Scot. p. 233.—Grev. Fl. Edin. p. 170.—Fl. Devon. pp. 131 & 156.—Johnst. Fl. Berw. v. i. p. 176.—Winch's Fl. of Northumbl. and Durh. p. 51.—Walker's Fl. of Oxf. p. 226.—Bab. Fl. Bath. p. 28.—Irv. Lond. Fl. p. 151.—Luxf. Reig. Fl. p. 68.—Cow. Fl. Guide, p. 28.—Mack. Catal. Pl. of Ircl. p. 70.—*Crepis polymorpha*, Wallr. Sched. Crit. v. i. p. 426.—*Hedypnois tectorum*, Huds. Fl. Angl. (2nd ed.) p. 341.—*Hieracium luteum glabrum sive minus hirsutum*, Ray's Syn. p. 165.—*Hieracium Lactucæ folio*, Dill. in Ray's Syn. p. 164.—*Hieracium aphacoides*, Johnson's Gerarde, p. 297.

Fig. 1. Involucrum; *a.* outer scales; *b.* inner ditto.—Fig. 2. Corolla.—Fig. 3. A separate Floret.—Fig. 4. Stamens and Pistil; *a.* Filaments; *b.* Anthers; *c.* Germen; *d.* Style; *e.* Stigmas.—Fig. 5. A Seed, and Pappus.—Fig. 6. Calyx, Receptacle (*a.*), and Seed.—Figs. 1, 3, 4, & 5, *more or less magnified.*

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* *Crepis*, Gr. a *slipper* or *last;* but why applied to this plant is not known.
† See folio 91, note †. ‡ See folio 147, note ‡. § See folio 27, *a.*

Localities.—In meadows, pastures, and waste ground, also on old walls, roofs, dry banks, and by road-sides, everywhere.

Annual.—Flowers from June to September.

Root tapering, simple, or slightly branched, fibrous, yellowish, and milky like the rest of the plant. *Stem* from 1 to 2 feet high, or more, upright, branched, furrowed, smooth, or sometimes slightly hairy, purplish, leafy. *Leaves* smooth, very variable both in size and form; those next the root more or less runcinate, somewhat resembling the leaves of the common Dandelion (t. 163.), sometimes rather pinnatifid; those on the stem slightly runcinate, variously toothed, stem-clasping, and arrowed-shaped at the base; the uppermost smaller, and nearly entire. *Flowers* small, yellow, sometimes a little purplish on the outside, in a slender, loose, roughish, bracteated, corymbose *panicle*. *Bracteas* awl-shaped. *Involucrum* oval when in the bud, becoming afterwards ventricose, equalling the pappus, more or less downy and glandular, its outer scales adpressed, few, small, and short, withering, but scarcely deciduous. *Seed* oblong, not attenuated, ribbed, smooth, shorter than the pappus. *Receptacle* with shallow rough-edged cells.

Mr. Babington, of St. John's College, Cambridge, in a Paper published in the 17th volume of "The Transactions of the Linnean Society of London," p. 451, has clearly shown that this plant is the *Crepis virens* of Linnæus, and not the *C. tectorum* of that author, as has generally been supposed. It is subject to so many variations both in shape and luxuriance, as well as smoothness, as to have occasioned no small confusion among Botanists, some of whom have considered its different varieties as distinct species. The most marked forms of these varieties are well defined by Mr. Babington in the Paper above mentioned; they are as follow.

"Crepis Virens, Linn.

α. Vera. Leaves lanceolate-runcinate, cauline ones lanceolate, sinuato-dentate, or nearly entire, sagittate; stem erect, branched above. *C. virens*, Linn. Sp. Pl. p. 1134.—*Common Hawkbeard.* Pet. Herb. xii. 6.

β. Pinnatifida. Radical leaves broadly ovate, blunt, remotely dentate, cauline ones linear-lanceolate, very deeply divided into numerous long linear segments, the uppermost nearly entire, sagittate; stem erect, branched above. *C. pinnatifida.* Willd. Sp. Pl. v. iii. p. 1604.—*Succory Hawkbeard.* Pet. Herb. xii. 7.

γ. Stricta. Wallr. Leaves linear-lanceolate, remotely dentate, cauline ones slightly sagittate; stem erect, branched above. *C. stricta.* Scop. v. ii. p. 99.—Buddle's *Hawkbeard.* Pet. Herb. xii. 5.

δ. Diffusa. Wallr. Leaves remotely dentate, sinuate or runcinate, cauline ones linear, nearly entire, hardly sagittate; stem diffuse, branching at the base. *C. tectorum*, var. 4. With. Bot. Arr. v. iii. p. 690. [7th edit. v. iii. p. 901.] *C. diffusa*, DC. Fl. Fr. v. v. p. 448. Spreng. Syst. v. iii. p. 634. *C. virens*, Willd. Sp. Pl. v. iii. p. 1604. Pers. Syn. Pl. v. ii. p. 376.—*Dandelion Hawkbit*, Pet. Herb. xii. 4. ?"

Mr. Babington observes, that the above mentioned varieties are so completely connected by intermediate forms, that it is often quite impossible to determine to which of them a particular specimen ought to be referred; but as they have been adopted as species by some Continental authors, he has thought it right to define their most marked forms.—The *Crepis tectorum* of Linnæus, which has not yet been found wild in Britain, is described as having the leaves sinuato-pinnatifid, the fruit (seeds) oblong, attenuated, with rough ribs, equalling the pappus; whereas our plant has the fruit smooth, oblong, shorter than the pappus.



Erythræa Centaurium Common Centaury.

Russell del. Pub.d by W. Baxter, Botanic Garden, Oxford, 1840. Mathews Sc.

ERYTHRÆ'A *.

Linnean Class and Order. PENTA'NDRIA †, MONOGY'NIA.

Natural Order. GENTIA'NEÆ, *Dr. R. Brown.*—Lindl. Syn. p. 177.; Introd. to Nat. Syst. of Bot. p. 215.—Rich. by Macgilliv. p. 444.—Loud. Hort. Brit. p. 526.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 173.—Mack. Fl. Hibern. p. 185.—Hook. Brit. Fl. (4th ed.) p. 413.—GENTIA'NÆ, Juss. Gen. Pl. p. 141.—Sm. Gram. of Bot. p. 106.—SYRINGALES; subord. PRIMULOSÆ; sect. GENTIANINÆ; type, GENTIANACEÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, & 1008.—ROTA'CEÆ, *Linn.*

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 1 sepal, in 5 deep, upright, pointed, awl-shaped segments, sometimes united below by a membranous border, permanent. *Corolla* (see fig. 2.) of 1 petal, salver-shaped; tube nearly cylindrical, slender; limb short, in 5 deep, egg-shaped or spear-shaped, spreading segments, withering. *Filaments* (see figs. 2 & 3.) 5, thread-shaped, equal, inserted into the tube, alternate with the segments of the limb, and shorter. *Anthers* (see fig. 3.) oblong, incumbent, twisting spirally as the pollen ripens. *Germen* (fig. 4.) elliptic-oblong, or nearly strap-shaped, compressed. *Style* (see fig. 4.) terminal, cylindrical, prominent, on a level with the stamens, straight, and generally upright. *Stigmas* 2, roundish. *Capsule* (see fig. 5.) elliptic-oblong, nearly strap-shaped, acute at each end, compressed, imperfectly 2-celled, of 2 valves, with inflexed margins (see fig. 6). *Seeds* (fig. 7.) numerous, roundish, in 4 rows, placed alternately on the inflexed margins of the valves.

The 5-cleft *calyx;* the inferior, monopetalous, salver-shaped *corolla;* the finally spiral *anthers;* and the imperfectly 2-celled *capsule;* will distinguish this genus from others in the same class and order.

Four species British.

ERYTHRÆ'A CENTAU'RIUM ‡. Centaury Gentian. Common Centaury. Lesser Centaury.

SPEC. CHAR. Stem 4-angled, nearly simple. Leaves egg-oblong, 3-nerved. Panicle forked, corymbose. Calyx half the length of the tube of the corolla; its segments partly combined by a membrane.

Pers. Syp. Plant. v. i. p. 283.—Sm. Engl. Fl. v. i. p. 320.—With. (7th ed.) v. ii. p. 320.—Lindl. Syn. p. 178.—Hook. Brit. Fl. p. 92.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 204.—Macr. Man. Brit. Bot. p. 157.—Hook. Fl. Scot. p. 79.—Grev. Fl. Edin. p. 54.—Fl. Devon. pp. 41 & 152.—Johnst. Fl. Berw. v. i. p. 61.—Winch's Fl. of Northumbl. and Durh. p. 15.—Walker's Fl. of Oxf. p. 64.—Bab. Fl. Bath. p. 31.—Lindl. Fl. Med. p. 521.—Irv. Lond. Fl. p. 140.—Luxf. Reig. Fl.

Fig. 1. Calyx.—Fig. 2. Ditto, and Corolla.—Fig. 3. A Stamen.—Fig. 4. Germen, Style, and Stigmas.—Fig. 5. Capsule.—Fig. 6. Transverse section of ditto.—Fig. 7. A Seed.—Figs. 1, 3, & 4, *a little enlarged.*

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* From *Erythros*, Gr. *red flower;* the flowers in most of the species being of that colour. † See folio 48, note †.

‡ So called from the *Centaur* CHIRON, who was said to be thereby cured of a wound accidentally inflicted by an arrow of HERCULES.

p. 19.—Cow. Fl. Guide. p. 30.—Mack. Catal Pl. Irel. p. 24.; Fl. Hibern. p. 186.—*Erythræa vulgaris*, Gray's Nat. Arr. v. ii. p. 337.—*Chirónia‡ Centaúrium*, Curt. Fl. Lond. t. 247.—Engl. Bot. t. 417.—Woodv. Med. Bot. v. iii. p. 435. t. 157.—Sm. Fl. Brit. v. i. p. 257.—With. (5th ed.) v. ii. p. 325.—Willd. Sp. Pl. v. i. pt. II. p. 1068.—Sibth. Fl. Oxon. p. 75.—Abb. Fl. Bedf. p. 47.—Thornt. Fam. Herb. p. 146, with a figure.—Davies' Welsh Bot. p. 23.—Relh. Fl. Cant. (3rd ed.) p. 97.—Purt. Mid. Fl. v. i. p. 134.; and v. iii. p. 348.—*Gentiana Centaurium*, Linn. Sp. Pl. p. 332.—With. (1st ed.) v. i. p. 141.—Lightf. Fl. Scot. v. i. p. 152.—*Centaurium minus*, Ray's Syn. p. 286.—*Centaurium parvum*, Johnson's Gerarde, p. 547.

LOCALITIES.—In dry gravelly pastures, on heaths, and sometimes in woods; not uncommon.

Annual.—Flowers from July to September.

Root small, tapering, fibrous, of a yellowish colour. *Stem* from 6 to 12 inches high, upright, generally simple, angular, smooth, leafy, sometimes branched. *Leaves* opposite, sessile, smooth, bright green; those from the root oblong, blunt, numerous, depressed; the rest acute, egg-shaped, or elliptic-spear-shaped, the uppermost often bent inwards; all 3-ribbed, and quite entire. *Flowers* nearly sessile, upright, forming a corymbose, forked, more or less dense, leafy or bracteated, *panicle*. *Bracteas* opposite, awl-shaped. *Calyx* upright, slender, about half the length of the tube of the corolla, to the base of which it is slightly united; segments tapering to a point, somewhat triangular, and connected by a membrane. *Corolla* salver-shaped; its tube long, and of a pale greenish colour; its limb of a most exquisite and brilliant pink, sometimes white; expanding only in sunshine, and closing almost as soon as gathered. *Anthers* yellow, twisted spirally in about 3 convolutions after shedding their pollen. *Germen* nearly filling the tube of the corolla, oblong, with a longitudinal furrow on each side. *Style* about half the length of the germen, cylindrical, cloven at the top, and divisible without much force all the way down. *Stigmas* 2, roundish, greenish-yellow. *Capsule* slender, brown, invested closely with the permanent dilated tube of the corolla, 1-celled, the edges of the valves turned inwards, but not so far as to meet. *Seeds* roundish, yellow.

This pretty plant is a native of most parts of Europe, and is esteemed as one of the most efficacious bitters of all the medicinal plants indigenous to this country. It is often substituted for gentian, and is equally efficacious. It is said to be the basis of the famous Portland Powder, which prevents fits of the gout, when taken in a large quantity, and for a long time together; but brings on induration of the liver, palsy, and apoplexy. A tincture of the leaves, and the upper part of the root, is a good medicine for weak stomachs and cachectic habits. A decoction of the whole plant destroys vermin, and cures psora. LINNÆUS says, cows are not fond of this plant; and Dr. STOKES, that in sheep pastures it is frequently left untouched. Its intense bitterness caused it to be named by the ancients *Fel Terræ*, or *Gall of the Earth*.

The following couplet of JOANNES POSTIUS proves the estimation in which it was formerly held:

> "Flos mihi suave rubet, sed inest quoque succus amarus,
> Qui juvat obessum bile, aperitque jecur."

Which GERARDE thus translates:

> "My floure is sweet in smell, bitter my juyce in taste,
> Which purge choler, and helps liver, that else would waste."



Euphorbia helioscopia. Sun Spurge ☉

Mathews. Del. & Sc. Pub.d by W. Baxter, Botanic Garden, Oxford. 1820.

EUPHO'RBIA *.

Linnean Class and Order. MONŒCIA†, MONA'NDRIA‡.

Natural Order. EUPHORBIA'CEÆ§, *Juss.*—Lindl. Syn. p. 220; Introd. to Nat. Syst. of Bot. p. 102.—Rich. by Macgilliv. p. 539.—Loud. Hort. Brit. p. 533.—Mack. Fl. Hibern. p. 235.—Hook. Brit. Fl. (4th edit.) p. 418.—EUPHORBIÆ, Juss. Gen. Pl. p. 384.—Sm. Gram. of Bot. p. 184.—QUERNEALES; sect. EUPHORBINÆ; type, EUPHORBIA'CEÆ; subtype, EUPHORBIDÆ; Burn. Outl. of Bot. pp. 523, 600, 602, & 604.—TRICOCCÆ, *Linn.*

GEN. CHAR. *Involucrum* (fig. 1, *a.*) of 1 leaf, tumid, with 4 or 5 marginal lobes, permanent, containing several (usually 12 or more) *barren flowers* (see figs. 2 & 3), intermixed with narrow bristly scales (fig. 4); and 1 central *fertile flower* (fig. 1, *c*); all stalked, and destitute of *calyx*, as well as of *corolla*. *Nectaries (glands*, Lindl.) (fig. 1, *b.*) 4 or 5, alternate with the lobes of the involucrum, fleshy, coloured, more or less lobed, or crescent-shaped, tumid, blunt. *Barren Flower* (fig. 3.) a single *stamen*, without *calyx* or *corolla*. *Filament* simple, hair-like, upright, its origin marked by a joint (see fig. 3, *a.*), often coloured, at the summit of the partial stalk. *Anthers* of 2 globose distinct lobes. *Fertile Flower* (see fig. 1, *c.* and fig. 2.) a single *pistil*, without *calyx* or *corolla*, on a longer partial stalk than the *barren ones*, prominent, mostly deflexed to one side. *Germen* (fig. 1, *c.*) hanging out of the involucrum, roundish, 3-lobed. *Styles* (fig. 1, *d.*) 3, terminal, equal, cloven about half way down, spreading, permanent. *Stigmas* bluntish. *Capsule* (fig. 5.) roundish, 3-lobed, of 3 cells, and 3 valves, with the partitions from the centre of each, bursting elastically. *Seeds* (figs. 6 & 7.) solitary, large, roundish, smooth or dotted.

The *involucrum* of one piece, including several *barren flowers* and one *fertile one*; the *barren flower* consisting of only a single *stamen*, without either calyx or corolla; the *fertile flower* of a single *pistil*, also destitute of calyx and corolla; the 3-cleft *style*; and the 3-lobed, 3-seeded *germen*; will distinguish this from other genera in the same class and order.

Fourteen species British.

EUPHO'RBIA HELIOSCO'PIA. Sun Spurge, Wart-wort. Rat-weed. Churn-staff. Cat's Milk. Little-good.

SPEC. CHAR. Umbel of five 3-cleft, then forked, branches. Bracteas and Leaves membranous, inversely egg-shaped, serrated. Nectaries 4, undivided. Capsule smooth. Seeds reticulated and pitted.

Fig. 1. Involucrum, with its flowers; *a.* involucrum; *b.* nectaries; *c.* germen; *d.* Styles.—Fig. 2. Several barren Flowers, and one fertile one, with the involucrum removed.—Fig. 3. A single barren Flower; *a.* the joint, where it is united to the flowerstalk.—Fig. 4. One of the Scales which are intermixed with the flowers.—Fig. 5. Capsule, burst.—Figs. 6 and 7. Seed.—All, except fig. 6, *more or less magnified.*

* So named in honour of EUPHORBUS, Physician to King JUBA, who probably first used it. THORNTON.

† See folio 83, note †. ‡ See folio 49, note †. § See folio 143, *a.*

Engl. Bot. t. 883.—Curt. Fl. Lond. t. —Linn. Sp. Pl. p. 658.—Huds. Fl. Angl. (2nd ed.) p. 209.—Willd. Sp. Pl. v. ii. pt. ii. p. 914.—Sm. Fl. Brit. v. ii. p. 516.; Engl. Fl. v. iv. p. 63.—With. (7th ed.) v. ii. p. 587.—Lindl. Syn. p. 221.—Hook. Brit. Fl. p. 381.—Macr. Man. Brit. Bot. pp. 203 & 204.—Lightf. Fl. Scot. v. i. p. 250.—Sibth. Fl. Oxon. p. 152.—Abbot's Fl. Bedf. p. 105.—Davies' Welsh Bot. p. 47.—Purt. Midl. Fl. v. i. p. 230 —Relh. Fl. Cant. (3rd ed.) p. 191.—Hook. Fl. Scot. p. 148.—Grev. Fl. Edin. p. 107.—Fl. Devon. pp. 81 & 137.—Johnst. Fl. Berw. v. i. p. 197.—Winch's Fl. Northumbl. and Durham, p. 58.—Walker's Fl. of Oxf. p. 262.—Bab. Fl. Bath. p. 44.—Dick. Fl. Abred. p. 53.—Irv. Lond. Fl. p. 279.—Luxf. Reig. Fl. p. 77.—Cow. Fl. Guide, p. 30.—Mack. Catal. Pl. Irel. p. 47; Fl. Hibern. p. 235.—*Galarhœus helioscopius*, Gray's Nat. Arr. v. ii p. 256.—*Tithymalus helioscopius*, Ray's Syn. p. 313.—Johnson's Gerarde, p. 498.

Localities.—A common weed in gardens, and on cultivated ground, everywhere.

Annual.—Flowers from June to September.

Root tapering, fibrous. *Stem* from 6 to 12 inches high, sometimes more, upright, round, leafy, often branched at the base, slightly hairy upwards. *Leaves* inversely egg-shaped, alternate or scattered, few, finely serrated, tapering at the base, or stalked, smooth, bright green. Umbel of 5 branches or rays, each of which divides into three others, which again divide into two; the whole furnished with broad inversely egg-shaped, serrated *bracteas*, *(involucrum* and *involucellum* of Linnæus,), which are larger than the leaves. *Involucrum (calyx* of Linn.*)* (fig. 1, *a.*) of a greenish yellow colour, with 4 or 5 segments. *Nectaries (petals* of Linn.*)* (fig. 1, *b.*) 4, attached to the margin of the involucrum, alternate with its segments, roundish, entire, at first green, then turning yellow. *Barren Flowers* (figs. 2 & 3.) about 12 in each involucrum, intermixed with narrow, branched scales (fig. 4.), and rising, 3 or 4 at a time, above the nectaries. *Fertile Flower* solitary, in the centre of the barren ones (see fig. 1, *c.* and fig. 2.) on a longer stalk, and mostly hanging out on one side of the involucrum. *Capsule* smooth. *Seed* (figs. 6 & 7.) of a purplish-brown colour, reticulated and pitted.

The whole plant abounds with a milky juice, which is very acrimonious; and hence it is often applied to warts for the purpose of destroying them, but great care should be used in its application, particularly near the eyes, as it will inflame the face to a great degree; it has been also used as a caustic for the bite of vipers. Dr. Johnston tells us, in his "Flora of Berwick-upon-Tweed," vol. i. p. 197, that there is on record the case of a boy, who was poisoned by eating some of the fresh herb.—According to Linnæus, if sheep eat it, they are purged by it, and their flesh acquires a bad taste; but this is not the case with cows.

A small, yellow, parasitic fungus (*Uredo Euphorbiæ*, Hook. Brit. Fl. vol. ii. pt. ii. p. 385.) is very common on this and some other species of *Spurge*, in the Summer and Autumn.

WILD-FLOWERS.

"How thick the wild-flowers blow about our feet,
Thick-strewn and unregarded, which, if rare,
We should take note how beautiful they were,
How delicately wrought, of scent how sweet,
And mercies which do everywhere us meet,
Whose very commonness should win more praise,
Do for that very cause less wonder raise,
And these with slighter thankfulness we greet,
Yet pause *thou* often on life's onward way—
Pause time enough to stoop and gather one
Of these sweet wild-flowers—time enough to tell
Its beauty over—this when thou hast done,
And marked it duly, then if thou canst lay
It wet with thankful tears into thy bosom well!"

R. C. TRENCH.


Hippocrepis comosa.
Tufted Horse-shoe vetch 2
Mathews Sc
Pub.d by W Hazlet Botanic Garden. Oxford. 1810.

HIPPOCRE'PIS *.

Linnean Class and Order. DIADE'LPHIA†, DECA'NDRIA.

Natural Order. LEGUMINO'SÆ, Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259.—Loud. Hort. Brit. p. 509.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—Hook. Brit. Fl. (4th ed.) p. 404.—Mack. Fl. Hib. p. 73.—LEGUMINA'CEÆ, Loud. Arb. Brit. p. 561.—PAPILIONA'CEÆ‡, *Linn.*—ROSALES; sect. CICERINÆ; subsect. LOTIANÆ; type, LOTACEÆ; subtype, HEDYSARIDÆ; Burn. Outl. of Bot. pp. 614, 638, 642, & 657.

GEN. CHAR. *Calyx* (fig. 1.) inferior, bell-shaped, permanent, divided, about half way down, into 5, pointed, spear-shaped segments; the 2 uppermost shortest, and less deeply separated. *Corolla* (fig. 2.) papilionaceous, of 5 petals, their claws longer than the calyx; standard (fig. 3.) heart-shaped, ascending, with a vaulted claw; wings (fig. 4.) inversely egg-shaped, blunt, with flat broadish claws; keel (fig. 5.) of 2 combined petals, rounded, pointed, with very narrow separate claws. *Filaments* (see fig. 6.) 10; 9 united into a tube, open at the upper edge; the tenth quite distinct; all curved upwards at the extremity. *Anthers* roundish. *Germen* slender, compressed, tapering into an awl-shaped ascending *style*. *Stigma* strap-shaped, rather flattened, quite smooth. *Legume* (fig. 7.) compressed, partly membranous, incurved, of several joints, each containing one seed, and curved like a horse-shoe (see fig. 8.); whence the upper edge of the legume appears as if cut into several rounded recesses. *Seeds* (fig. 9.) cylindrical or compressed, oblong, attached to the middle part of each curvature.

The smooth *style;* and the compressed, partly membranous, incurved *legume*, of many joints, which are curved like a horse-shoe; will distinguish this from other genera, with diadelphous stamens, in the same class and order.

One species British.

HIPPOCRE'PIS COMO'SA. Tufted Horse-shoe Vetch.

SPEC. CHAR. Legumes from 5 to 8, in an umbellate tuft, crowded, pedunculated, curved, rough, sinuated on both margins.

Engl. Bot. t. 31.—Jacq. Fl. Austr. vol. v. p. 14. t. 431.—Linn. Sp. Pl. p. 1050.—Huds. Fl. Angl. (2nd edit.) p. 321.—Willd. Sp. Pl. v. iii. pt. II. p. 1159.—Sm. Fl. Brit. v. ii. p. 777.; Engl. Fl. v. iii. p. 291.—With. (7th ed.) v. iii. p. 848.—Gray's Nat. Arr. v. ii. p. 618.—Lindl. Syn. p. 88.—Hook. Brit. Fl. p. 326.—Maer. Man. Brit. Bot. p. 57.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 277. f. 42.—Sibth. Fl. Oxon. p. 226.—Abbot's Fl. Bedf. p. 159.—Relh. Fl. Cant. (3rd edit.) p. 296.—Purt. Midl. Fl. v. iii. p. 62.—Hook. Fl. Scot. p. 216.—Fl. Devon. pp. 123 & 175.—Winch's Fl. of Northumbl. and Durh. p. 48.—Walker's Fl. of Oxf. p. 210.—Bab. Fl. Bath. p. 13.—Irv. Lond. Fl. p. 176.—Luxf. Reig. Fl. p. 64.—Cow. Fl. Guide,

Fig. 1. Calyx.—Fig. 2. Calyx and Corolla.—Fig. 3. Standard.—Fig. 4. One of the Wings.—Fig. 5. The Keel.—Fig. 6. Stamens.—Fig. 7. A Legume.—Fig. 8. A separate joint of ditto.—Fig. 9. A Seed.

* From *hippos*, Gr. a *horse;* and *krepis*, Gr. a *shoe;* in reference to the shape of the recesses of the pods, which are curved in such a manner as to give them a likeness to a horse's shoe. DON.

† See folio 77, note †. ‡ See folio 117, note ‡.

p. 34.—*Ferrum equinum Germanicum, siliquis in summitate*, Ray's Syn. p. 325.—Blackst. Sp. Bot. p. 21.

Localities.—On banks, and in pastures, on a calcarious soil.—*Oxfordshire;* Bullington Green; Stokenchurch Hills; and Burford Downs: Dr. Sibthorp. Headington Quarry, in abundance: June 14, 1831; W. B. Between Woodstock and Enstone: Rev. W. T. Bree.—*Berks;* Near the Sham at Henley: May, 1831; W. B.—*Beds.* Barton Hill: Rev. C. Abbot.—*Bucks;* Hedsor, &c.: Mr. W. Hurst, in N. B. G.—*Cambridgeshire;* Chalk-pit Close; Gogmagog Hills; Chippenham; Linton; and Newmarket Heath: Rev. R. Relhan. Cherry Hinton: J. E. Leefe, in N. B. G.—*Derbyshire;* A mile or two up Dove Dale; and in Monsall Dale: N. B. G.—*Devon.* Rocks about Babbicombe and Torquay: *Fl. Devon.*—*Durham;* On Cronkley Fell, at an elevation of above 1,500 feet: N. J. Winch, Esq.—*Gloucestershire;* Clifton: G. Rogers, in N. B. G. Upper Slaughter: Rev. E. F. Witts.—*Kent;* Between Northfleet and Gravesend: Cambden. About Ospringe near Faversham: E. Jacob, Esq. Near Gravesend: Blackstone. Under Dover Cliffs: Mr. W. Christy.—*Lancashire;* Rocks at Kellet: G. Crosfield, Esq.—*Norfolk;* At Marham: Sir J. E. Smith. Swaffham: Mr. Woonward.—*Notts;* In Nottingham Park, but not very common: Dr. Deering.—*Somersetshire;* On Wick Cliffs, and St. Vincent's Rocks: Rev. G. Swayne. Copse at Ford, on the Pollen Hills: J. C. Collins, in N. B. G. Brean Down: W. C. Trevelyan, Esq. in N. B. G. Wyck; Combehay; Conkwell; and on many parts of the hills: C. C. Babington, Esq.—*Surrey;* Field behind Juniper Hill; and about old quarries West of Dorking: N. J. Winch, Esq. Epsom Downs: Mr. W. Pamplin, jun. Coulsdon: E. Wood, in N. B. G. Plentiful on Reigate Hill: G. Luxford.—*Sussex;* West of the County: N. B. G.—*Westmoreland;* Scout Scar; and Hellbeck Scar: N. B. G.—*Wilts;* On the high grounds North of Marlborough: Withering. Box, and Corsham: N. B. G.—*Worcestershire;* South side of Bredon Hill, below the Camp: Nash.—*Yorkshire;* Aysgarth Force, Wensleydale; Malham Cove; Craven; Rocks above Settle; Cronkley Fell; Gordale Scar; and Kilnsay Crag: N. B. G.—WALES. *Caernarvonshire;* Rocks above Llandudno: *Mag. Nat. Hist.*—SCOTLAND. *Ayrshire;* Dundonald Castle near Ayr: Mr. Reid.

Perennial.—Flowers from April to August.

Root thick, woody, fibrous, running deep into the ground; yellow on the outside, white within. *Stems* several, much branched, furrowed, glossy, smooth, or slightly hairy, leafy, procumbent, from 3 inches to a foot long. *Leaves* alternate, pinnate; *leaflets* uniform, from 7 to 11, inversely egg-shaped, blunt, minutely pointed, somewhat fleshy; smooth on the upper surface, more or less hairy on the under. *Stipulas* in pairs, egg-shaped, entire, rather spreading. *Peduncles* axillary, and terminal, round, smooth, somewhat furrowed, longer than the leaves, and bearing, at their summit, an umbel of from 5 to 10 flowers, each on a very short, slightly hairy pedicel, bent down after flowering. *Calyx* small, striated, slightly pubescent, its teeth short and spreading, the two upper distant from the lower, and less deeply divided. *Corolla* pale yellow; standard striated in front with very delicate veins. *Legumes* about an inch long, curved downward, of a bright-bay colour, rough with minute prominent tubercles; their joints crescent-shaped (see fig. 8.), nearly cylindrical, obscurely 2-edged, but neither dilated nor bordered.

This very pretty plant is a native of Europe, in Germany, Italy, France, Austria, and Britain; but it appears not to have been found in Ireland, as it is not noticed in Mr. Mackay's *Flora Hibernica*, published in 1836. It is said to be also indigenous to the north of Africa. It is quite worthy of cultivation in the garden, and is well fitted for ornamenting banks and rock-work. The flowers very much resemble those of *Lotus corniculatus*, t. 249; but the plant may be readily distinguished from that by its pinnated leaves, and its curiously notched legumes.



Imperatoria Ostruthium. Great Masterwort V

Pub.d by W. Baxter, Botanic Garden Oxford 1840

Mathews Sc

IMPERATO'RIA *.

Linnean Class and Order. PENTA'NDRIA †, DIGY'NIA.

Natural Order. UMBELLI'FERÆ ‡, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.—Lindl. Syn. p. 111; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—Hook. Brit. Fl. (4th edit.) p. 408.—UMBELLATÆ, *Linn.*—ROSALES; sect. ANGELICINÆ; type, ANGELICACEÆ; subtype, ANGELICIDÆ; Burn. Outl. of Bot. v. ii. pp. 614, 770, 773, & 774.

GEN. CHAR. *Flowers* (see fig. 1.) all perfect and prolific, the outermost only very slightly irregular. *Calyx* none. *Corolla* (fig. 1.) of 5 inversely heart-shaped petals, with a slender incurved point. *Filaments* (see fig. 1.) 5, thread-shaped, spreading, longer than the petals. *Anthers* almost globular. *Germen* (see fig. 2.) inferior, nearly orbicular, compressed, ribbed. *Styles* (see fig. 2.) 2, short, distant, egg-shaped, and very tumid at the base. *Stigmas* capitate. *Floral-receptacle (stylopodium*, Hoffm.) none. *Fruit* (see figs. 3. and 4.) orbicular, crowned with the bases of the styles, having a hollow at top and at bottom, and a rounded, dilated, closely compressed margin. *Carpels* (see figs. 5 & 6.) convex, with 3 prominent dorsal ribs, and a broad, flat, even border, as wide at each side as the body of the carpel. *Interstices* (see fig. 6.) with single *vittæ*. *Seed* flat on its inner face. *Involucrum* variable; *involucellum* many-leaved.

Distinguished from other genera, in the same class and order, by the obsolete *calyx;* the inversely heart-shaped, very slightly irregular *petals*, with inflexed points; the solid, unarmed, transversely compressed *fruit*, with a broad thin margin; the *carpels* with 3 prominent dorsal ribs, and 2 nearly obsolete marginal ones, contiguous to, or combined with the margin; and the *interstices* with single *vittæ*. Differs from *Peucedanum* in the calyx being obsolete.

One species British.

IMPERATO'RIA OSTRU'THIUM. Sparrow Masterwort. Great Masterwort. Broad-leaved Hog's Fennel. Bastard Pillitory of Spain.

SPEC. CHAR. Lower leaves twice ternate; upper ones less compound; leaflets broad, smooth, rough edged, finely and sharply serrated, partly cut or lobed, sometimes 3-cleft. Sheaths of leaves dilated.

Engl. Bot. t. 1380.—Woodv. Med. Bot. v. i. p. 102. t. 35.—Linn. Sp. Pl. p. 371.—Huds. Fl Angl. (2nd ed.) p. 649.—Willd. Sp. Pl. v. i. pt. II. p. 1458.—Sm. Fl. Brit. v. i. p. 327.; Engl. Fl. v. ii. p. 78.—With. (7th edit.) v. ii. p. 391.—Macr. Man. Brit. Bot. p. 103.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 335,—Lightf. Fl. Scot. v. i. p. 168.—Thornt. Fam. Herb. p. 298, with a figure.—Hook. Fl. Scot. p. 94.—Grev. Fl. Edin. p. 67.—Winch's Fl. of Northumbl. and Durh. p. 19.—Burn.

Fig. I. A separate Flower.—Fig. 2. Germen and Styles, with a partial flower-stalk, and a leaf of the involucellum.—Figs. 3 & 4. The Fruit.—Figs. 5 & 6. Transverse section of the same.—*All*, except figs. 2 and 3, *more or less magnified.*

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* So named from its supposed imperial virtues in medicine. DON.

† See folio 48, note †. ‡ See folio 235, *a*.

Outl. of Bot. v. ii. p. 778.—Lindl. Fl. Med. p. 49.—Irv. Lond. Fl. p. 234.—*Imperatoria major*, Bauh. Pin. p. 156.—Gray's Nat. Arr. v. ii. p. 519.—*Imperatória*, Johnson's Gerarde, p. 1001.—*Peucédanum Ostrúthium*, Koch. Umb. p. 95 — Lindl. Syn. p. 116.—Hook. Brit. Fl. p. 119.—Mack. Fl. Hibern. p. 116.

Localities.—In moist meadows and pastures; rare. A doubtful native.—*Cheshire;* Near J. Oldham's garden at Hyde, probably an outcast: Mr. Bradbury.—*Cumberland;* By a brook from the N. end of Thirlmere, in a field by the road-side: Mr. H. C. Watson, in N. B. G.—*Durham;* At Newbiggen, near Middleton; and in Teesdale Forest: Rev. J. Harriman. On the banks of Dadree Burn, between Dadree Shield and the Wear: N. J. Winch, Esq. At Cotterton, near Barnard-castle: Mr. E. Robson.—*Shropshire;* Near Bridgenorth, but in a situation that would allow of its being an outcast of a garden: Dr. Withering.—*Westmoreland;* "I found this plant in crossing the Moors from Brough to Middleton in Teesdale, in a meadow immediately after crossing the Lune, as truly wild as ever plant was": Mr. Brunton, in B. G.—*Yorksh.* Cotherstone, near Barnard-castle: Mr. Robson. Busk, near Semer Water, Wensleydale; and near Thoralby: J. Ward, in N. B. G.—SCOTLAND. *Argyleshire;* Near Mountstewart, Isle of Bute: Rev. J. Lightfoot.—*Dumbartonshire;* Banks of the Clyde, in several places, particularly about Ardencaple: Rev. J. Lightfoot. Edge of woods on the side of Gair Loch, sparingly: Mr. Murray.—*Edinburghshire;* Near Borthwick Castle: Messrs. Maughan and Shuter.—*Fifeshire;* At Milnathort, two miles north from Kinross: Mr. Maughan.—*Lanarkshire;* On an old wall at Langland House; and in waste ground near Jackton: *Fl. Glot.*—*Linlithgowshire;* Plantation opposite the house of Black Hall, West Lothian: Mr. Maughan.—*Peeblesshire;* On the side of the Tweed, about half a mile above the old Castle of Drummelzier: Dr. Burgess, in *Fl. Scot.*—IRELAND. *County of Down;* Old hedges on the town-land of Ballydolaghan, to all appearance perfectly wild: Mr. Campbell, in *Fl. Hibernica.*

Perennial.—Flowers in June.

Root thick and fleshy, tuberous, brown on the outside, whitish within, somewhat creeping, with many lateral fibres. *Stem* upright, from 1 to 2 feet high, hollow, round, striated, smooth, leafy, simple, or slightly branched. *Lower leaves* on long *petioles*, twice ternate; *upper leaves* less compound, on shorter *petioles;* with a sheathing, membranous, sometimes jagged, dilatation at the base. *Leaflets* broad, veiny, smooth on both sides, rough-edged, sharply and unequally serrated, partly cut or lobed, the middle one, sometimes all three, deeply 3-cleft; the uppermost often very narrow. *Umbels* few, terminal, large, flattish, of many (often 40 or more) smooth rays. *Umbellules* of still more rays; with an *involucellum (partial involucrum)* of several bristle-shaped leaves. *Flowers* white, or pale flesh-coloured, numerous; *petals* equal, inflexed. *Styles* short, reflexed, capitate. *Fruit* nearly circular, smooth, straw-coloured, shining, with a notch at the top and bottom. *Carpels* compressed, surrounded at the sides with a broad thin margin, and marked on the back with three white, acute-angled ribs, not winged; the inner face flat.

This plant is a native throughout Europe; also in Newfoundland. It is thought not to be an original native of Britain, but is considered to have become naturalized from gardens, it having been much cultivated formerly for the sake of its root, which is of an aromatic and acrid quality, and was long supposed a sovereign counter poison, and celebrated as a powerful external, as well as internal remedy in numerous disorders. It is said to be a sudorific, diuretic, and sialogogue; recommended in dropsy and debilities of the stomach and bowels. An infusion of it in wine is said to have cured quartan agues which had resisted the influence of Peruvian bark. Half a dram of the root in substance, and one dram of it in infusion, is the quantity directed to be taken four times a day. It has been recommended as a masticatory to relieve the toothache; and many writers on Materia Medica speak well of it as a febrifuge.



Quercus Robur Common Oak. ♄

C. Mathews, Del. & Sc. Publ.d by W. Baxter, Botanic Garden, Oxford. 1846.

QUE'RCUS*,

Linnean Class and Order. MONŒ'CIA †, POLYA'NDRIA.

Natural Order. CUPULI'FERÆ, *Richard.*—Lindl. Syn. p. 239; Introd. to Nat. Syst. of Bot. p. 97.—Rich. by Macgilliv. p. 545.—AMENTA'CEÆ, *Linn.*—Juss. Gen. Pl. p. 407.—Sm. Gram. of Bot. p. 189.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 242.—Hook. Brit. Fl. (4th ed.) p. 419.—QUERNEALES; sect. QUERCINÆ; type, CORYLACEÆ; Burn. Outl. of Bot. v. ii. pp. 523 & 531.

GEN. CHAR. *Sterile* and *fertile Flowers* on the same plant. *Sterile Flowers* (figs. 1 & 2.) in a long, slender, lax, pendulous catkin, deciduous. *Calyx (bractea,* Loud.) (see fig. 2.) a scale of 1 leaf, in 4, 5, or more, deep, often divided, segments. *Corolla* none. *Filaments* (see fig. 2.) from 5 to 10, short, awl-shaped. *Anthers* roundish, of 2 channelled lobes. *Fertile Flowers* (see figs. 3 & 4.) on upright, axillary peduncles; a few upon a peduncle. *Calyx* double, both permanent, outer one hemespherical, coriaceous, single flowered (see figs. 4 & 6.), intire, much enlarged in the fruit (see fig. 7, *b*), and externally scaly, or tuberculated; inner of one leaf, in 6 minute, deep, sharp, downy, segments, closely surrounding the germen and base of the style. *Corolla* none. *Germen* (fig. 5,) 1, globose, of 3 cells, with the rudiments of 2 seeds in each, that at first are erect, but soon after pendulous. *Style* (see fig. 5.) short. *Stigma* 3-lobed, rather fleshy. *Fruit* (see fig. 7, *a*.) an acorn, mostly oblong, or egg-shaped; its lower part invested with an imbricated cup (outer calyx) (fig. 7, *b*); its base scared; the rest of its surface invested with the adherent, coriaceous, smooth, inner calyx, which is separable by art; cell 1, *seed* 1, very rarely 2. *Cotyledons* large, half-egg-shaped; without any separate *albumen; embryo* at the top.

The loose, pendulous catkins of *sterile flowers*, with a calyx of 1 leaf in several deep segments; the *fertile flowers* with a scaly cup-shaped, entire, *outer calyx*; a *germen* with 3 cells, 2 of which are abortive, and a 3-lobed *stigma*; and the *fruit* a 1-celled, 1-seeded *acorn*, seated in the cup-shaped, enlarged, *outer calyx* or *involucrum*; will distinguish this from other genera, in the same class and order.

Two species British.

QUE'RCUS ROBUR‡. Common British Oak. Peduncled British Oak. English Oak. Naval Oak. Longlived Oak.

SPEC. CHAR. Leaves deciduous, oblong, wider towards the extremity; sinuses rather acute; lobes blunt. Fruits 2 or 3 upon a long peduncle. Acorn oblong.

Engl. Bot. t. 1342.—Woodv. Med. Bot. v. ii. p. 344. t. 126.—Mart. Fl. Rust. t. 10; the stalked variety.—Hunt. Evel. Sylv. p. 69, with a plate.—Linn. Sp. Pl. p. 1414.—Huds. Fl. Angl. (2nd edit.) p. 421. excl. var. β.—Sm. Fl. Brit. v. iii. p. 1026.; Engl. Fl. v. iv. p. 148.—With. (7th ed.) v. ii. p. 502.—Lindl. Syn. p. 240.—Hook. Brit. Fl. p. 407.—Maer. Man. Brit. Bot. p. 216.—Lightf. Fl. Scot. v. ii. p. 581. var. 1.—Sibth. Fl. Oxon. p. 133.—Davies' Welsh Bot. p. 90—Thorn. Fam.

Figs. 1 & 2. Sterile Flowers.—Figs. 3 & 4. Fertile ditto.—Fig. 5. Germen and Pistil.—Fig. 6. Young Fruit.—Fig. 7. Ripe Fruit; *a.* the acorn; *b.* the enlarged outer calyx, with the acorn removed.—*All,* except figs. 1, 3, & 7, *more or less magnified.*

* From the Celtic *quer, beautiful;* and *cuez,* a *tree.* It produced the Misseltoe of the *Druids,* and was thence called also *derw;* hence *drus,* in Greek, and *Dryades.* HOOKER.

† See folio 93, note †.

‡ *Robur, strength;* in allusion to the quality of the wood.

Herb. p. 762, with a figure.—Purt. Mid. Fl. v. ii. p. 159.—Relh. Fl. Cant. (3rd ed.) p. 395.—Hook. Fl. Scot. p. 273.—Grev. Fl. Edin. p. 202.—Fl. Devon. pp. 155 and 133.—Johnst. Fl. of Berw. v. i. p. 206.—Winch's Fl. of Northumbl. and Durh. p. 61.—Walker's Fl. of Oxf. p. 281.—Bab. Fl. Bath. p. 46.—Dick. Fl. Abred. p. 56.—Luxf. Reig. Fl. p. 82.—Cow. Fl. Guide, p. 43.—Mack. Catal. Pl. Irel. p. 83.; Fl. Hibern. p. 255.—*Quercus Pedunculáta*, Willd. Sp. Pl. v.iv. p.450.—Abbot's Fl. Bedf. p. 210.—Loud. Arb. et Frutic. Brit. p. 1731. f. 1567; Pl. 281, *a.*, 282, and 282, *a.*—Lindl. Fl. Med. p. 291.—*Quercus longæva*, Gray's Nat. Arr. v. ii. p. 247.—*Q. fœmina*, With. (5th ed.) v. ii. p. 480.—*Q. latifolia*, Ray's Syn. p. 440. —*Q. vulgaris*, Johnson's Gerarde, pp. 1339, 1340.

Localities.—In woods and hedges, everywhere.

A Tree.---Flowers in April.

A large and very handsome tree, growing to the height of 50, or even 100 feet, with a rough bark, and widely extended, nearly horizontal, and somewhat flexuose or zigzag branches, and spray; and, when standing singly, with a head often broader than it is high. *Leaves* alternate, nearly sessile, smooth, shining above; paler, and slightly glaucous beneath, with a single mid-rib, and veins passing into the lobes. *Sterile Flowers* in long, slender, drooping, many-flowered, deciduous catkins; *fertile ones* on axillary, simple peduncles, 2 or 3 on each peduncle, small, brownish-green; their *outer calyx* becoming much enlarged, and hardened, and constituting the well-known permanent cup of the smooth, finally deciduous, *nut*, or *acorn*.

The uses of this noble and most important tree are well known. The wood is hard and tough, very durable, tolerably flexible; not easily splintering; and therefore is preferred to all other timber for building of ships. The acorns were the food of the ancient Britains, and particularly of the Druids, but they are little used at present, except to fatten hogs and deer. Rouell says they may be used as coffee, and that they have the property of strengthening the nerves. The bark, which is very astringent, is extensively used in tanning leather. It is also used in medicine; and an infusion of it, with a small quantity of copperas, is sometimes used to dye woollen of a purplish-blue; the colour, though not bright, is durable. The galls, (or oak-apples, as they are sometimes called,) which are found upon the leaves of this tree, appear to be the most powerful of the vegetable astringents, striking a deep black when mixed with a solution of ferrum vitriolatum, and therefore preferred to every other substance for the purpose of making ink. Reduced to a fine powder, and made into an ointment, they have been found of great service in hæmorrhoidal affections. Oak saw-dust is the principal indigennus vegetable used in dying fustian; all the varieties of drabs and different shades of brown, are made with oak saw-dust, variously managed and compounded.—A great number of insects depend more or less for subsistance on the Oak tree; and the different species of Mosses, Lichens, and Fungi, that are parasitical upon it, are too numerous to particularize here. They may be seen in Mr. Loudon's *Arboretum et Fruticetum Britannicum*.

The Oak, as Dr. Johnston observes, in his excellent *Flora of Berwick-upon-Tweed*, "has ever been a favourite with Britains. Under its shade, the Druids, the priests of his ancestors, held their solemn festivals: in after centuries its timber supported and beautified the venerable cathedrals raised for a purer worship; the palaces of his princes rose on pilasters of Oak, and it was the board of their festivities; but, above all, it is dear to him as the material of the 'wooden walls' of his native isle."—The most complete account of this and the other British species (*Q. sessiliflora*), that has ever been written, is given in Mr. Loudon's *Arboretum et Fruticetum Britannicum*. In that most excellent work, Mr. Loudon has brought together, and properly arranged, every thing that is at present known respecting the Geography, History, Biography, Properties, Uses, Propagation, Culture, Statistics, &c. &c. of the Oak; with descriptions, and portraits, of all the most remarkable specimens of this "king of the forest," in every part of the country. The matter relative to the British Oaks alone, occupies 112 closely printed pages, in small type, and is illustrated by 130 beautifully executed wood engravings, and many very interesting and appropriate extracts from the poets. Much valuable information on this subject may also be obtained from Dr. Withering's *Botanical Arrangements*, 7th edition; and Miss Kent's *Sylvan Sketches*.



Arundo Phragmites. Common Reed. 2

C. Mathews, Del. & Sc. Publ.d by W. Earle Botanic Garden Oxford. 1840.

ARU'NDO*.

Linnean Class and Order. TRIA'NDRIA†, DIGY'NIA.

Natural Order. GRAMI'NEÆ, Juss. Gen. Pl. p. 28.—Sm. Gram. of Bot. p. 86.; Engl. Fl. v. i. p. 71 —Lindl. Syn. p. 293.; Introd. to Nat. Syst. of Bot. p. 292.—Rich. by Macgilliv. p. 393.—Loud. Hort. Brit. p. 542.—Mack. Fl. Hibern. p. 294.—Hook. Brit. Fl. (4th ed.) p. 426.—GRAMINA, *Linn.* GRAMINALES; sect. FESTUCINÆ; type, AVENACEÆ; Burn. Outl. of Bot. v. i. pp. 359 & 369.

GEN. CHAR. *Panicle* branched, loose. *Spikelets* (fig. 2.) from 3- to 6-flowered. *Florets* (see figs. 2 & 3.) in 2 rows, distant, not bearded; lowest floret with stamens only, the rest with both stamens and pistils. *Rachis* (see fig. 2.) beset with long silken hairs. *Calyx* (fig. 1.) of 2, membranous, unequal, keeled, awnless *glumes*, shorter than the florets, the lower much shorter than the upper. *Corolla* (fig. 3.) of 2 unequal, membranous *paleæ;* the lower very long, sharp pointed, and twice or thrice the length of the upper one. *Filaments* (see fig. 3.) 3, hair-like, about the length of the calyx. *Anthers* cloven at each end. *Germen* (see fig. 4.) inversely egg-shaped. *Styles* (see fig. 4.) 2, short. *Stigmas* (see fig. 4.) feathery, densely tufted. *Scales* (fig. 5.) 2, smooth, large, embracing the germen. *Seed (cariopsis,* Rich.) oblong, loosely covered by the corolla.

Distinguished from other genera, with loose panicles, in the same class and order, by the 3- to 6-flowered *calyx* of 2 unequal glumes; and the *corolla* of 2 very unequal paleæ, all, except the lower and imperfect one, with a tuft of hairs at their base.

One species British.

ARU'NDO PHRAGMI'TES. Hedge Reed. Common Reed. Bank-side Reed. Loch Reed.

SPEC. CHAR. Panicle spreading. Glumes acuminate, coloured, ribbed, about 5-flowered. Leaves spear-shaped, tapering to a fine, almost hair-like, point.

Engl. Bot. t. 401.—Knapp's Gram. Brit. t. 95.—Graves' Brit. Grasses, t. 114.—Linn. Sp. Pl. p. 120.—Huds. Fl. Angl. (2nd edit.) p. 53.—Willd. Sp. Pl. v. i. pt. i. p. 454.—Leer's Fl. Herb. p. 45. t. 7. f. 1.—Sm. Fl. Brit. v. i. p. 144.; Engl. Fl. v. i. p. 168.—With. (7th edit.) v. ii. p. 196.—Lindl. Syn. p. 310.—Hook. Brit. Fl. p. 52.—Lightf. Fl. Scot. v. i. p. 106.—Sibth. Fl. Oxon. p. 50.—Abbot's Fl. Bedf. p. 25.—Davies' Welsh Bot. p. 12.—Purt. Midl. Fl. v. i. p. 78.—Relh. Fl. Cant. (3rd edit.) p. 47.—Hook. Fl. Scot. p. 27.—Grev. Fl. Edin. p. 17.—Fl. Devon. pp. 13 and 121.—Johnst. Fl. of Berw. v. i. p. 29.—Winch's Fl. of Northumbl. and Durh. p. 8.—Walker's Fl. of Oxf. p. 31.—Bab. Fl. Bath. p. 58.—Murr. Nort. Fl. p. 45.—Dick. Fl. Abred. p. 25.—Irv. Lond. Fl. p. 100.—Luxf. Reig. Fl. p. 10.—Cow. Fl. Guide, p. 22.—Mack. Catal. Pl. Irel. p. 16.; Fl. Hibern. p. 313.—*Arundo vallatoria,* Ray's Syn. p. 401.—Johns. Ger. p. 36.—Gray's Nat. Arr. v. ii. p. 128. *Arundo vulgaris,* Scheuchz. Agrost. p. 161. t. 3. f. 14. D.—*Phragmites communis,* Macr. Man. Brit. Bot. p. 264.

LOCALITIES.—In marshes, wet ditches, and about the margins of lakes, rivers, &c.; common.

Fig. 1. Calyx.—Fig. 2. A Spikelet.—Fig. 3. A single Floret.—Fig. 4. Germen and Pistils.—Fig. 5. Nectary, or Scales.—Fig. 6. Seed.—*All a little magnified.*

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* From *areo, arendo;* soon becoming dry. WITHERING.

† See folio 56, note †.

Perennial ---Flowers from July to September.

Root creeping. *Culms (stems)* upright, stout, from 5 to 7 feet high, annual, hollow, with many knots, very smooth, shining, leafy. *Leaves* a foot long, or more, spear-shaped, broad, many-ribbed, rough-edged, egg-shaped at the base, tapering to a very fine point at the apex. *Sheaths* long, furrowed, with tufted, silky hairs, in place of a *stipula*. *Panicle* very large, brownish-purple, handsome, at first upright, and contracted, afterwards spreading, finally drooping. *Spikelets* spear-shaped, pointed, dark purple, from 3- to 6-flowered. *Calyx* of 2, unequal, purple glumes, shorter than the contained awnless florets, which are 6 or less in number. Each floret, except the lowermost, is accompanied by a tuft of long silky hairs at its base; which spring from the rachis or floral receptacle, and not from the florets themselves. As the flowers advance, the tufts of hairs become longer and more conspicuous.

This plant is a native throughout Europe, in Siberia, North America, &c. Thunberg is said to have observed it in Japan, with a wider panicle than ours, loose, but not diffused, and an herbaceous culm. It forms frequently patches of immense extent, called *Reed-ronds* in some parts of the west of England, where harbour many aquatic birds, and the rare *Parus biarmicus*, or *Bearded Titmouse*, which feeds upon the seeds. The panicles of flowers are often dried and introduced in Winter boquets; in Holland they are extensively used for making hearth-besoms; and in Lapland, for dyeing coarse cloths of a yellowish-green colour. The culms are much used for thatching, for which purpose they are superior to common straw; and in several of the fenny counties in England, not only cottages, but houses of a better description, are covered with them. Screens to keep off the cold winds in gardens are made of them; and they are laid across the frame of wood-work, as the foundation for plaster floors; they are in great request with brick-makers; and to make pens for sketching or etching where freedom is required. Till the introduction (in the seventh century) of the more proper pens *(penna)*, made of the quills of birds, they were likewise in general use for writing, though inferior to those produced in warmer climates. They also occasionally serve for the shafts of arrows. The inner membrane of the culm makes an excellent hygrometer. The young shoots, if cut off from the root where not exposed to the light, make a good pickle. In the heads of this plant the Entomologist may often find a considerable variety of insects, whither they resort for food or shelter. *Puccinia Graminis*, Hook. Brit. Fl. v. ii. pt. ii. p. 363, often occurs in great abundance on the leaves and culms of this species of Reed. This is the same parasitical fungus which so often attacks the wheat, and which is so injurious to corn. It is known to the farmers under the names of Blight, Mildew, and Rust. For very highly magnified figures of it, see two excellent engravings accompanying a paper on the subject of blight, &c. in corn, by Sir J. Banks, in the *Annals of Botany*, v. ii. p. 51.; and Curtis's *Pract. Observ. on Brit. Grasses*, (5th edit.) p. 101. *Sphæria arundinácea*, Hook. Brit. Fl. v. ii. pt. ii. p. 256, is not uncommon on such culms as have lost the sheathing bases of the leaves.

In most parts of the kingdom the Reed is annually cut; and in the fenny parts of Lincolnshire, Dr. Johnston tells us, it forms a valuable harvest. Pennant says, he saw a stock of Reeds, the property of a single farmer, which was worth from two to three hundred pounds. Swamps, and land occasionally overflowed, may be rendered very productive by being planted with Reeds, for which purpose pieces of the root should be placed in the ground, in rows, at a foot or 18 inches apart. A variety is sometimes found with variegated leaves.


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Jasione montana. Sheep's Scabious ⊙
Ruy Bell Del
Pub.d by W Baxter, Botanic Garden, Oxford, 1810.
Mathews Se

JASI'ONE*.

Linnean Class and Order. PENTA'NDRIA †, MONOGY'NIA.

Natural Order. LOBELIA'CEÆ ‡, *Juss.*—Lindl. Syn. p. 137.; Introd. to Nat. Syst. of Bot. p. 187.—Mack. Fl. Hibern. p. 138.—CAMPANULA'CEÆ, Juss. Gen. Pl. p. 163.—Sm. Gram. of Bot. p. 117.—Rich. by Macgilliv. p. 453.—Loud. Hort. Brit. p. 522.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 731.—Hook. Brit. Fl. (4th ed.) p. 411.—CAMPANACEÆ, *Linn.*—SYRINGALES; subord. ERICOSÆ; sect. CAMPANULINÆ; Burn. Outl. of Bot. pp. 900, 937, and 938.

GEN. CHAR. (*Flowers* collected into a head, within a many-leaved *Involucrum*). *Calyx* (fig. 1.) superior, of 1 sepal, in 5 deep, pointed segments. *Corolla* (see fig. 4.) of 1 petal, wheel-shaped, in 5 deep, spear-shaped, equal, straight, moderately spreading segments. *Filaments* (see fig. 2.) 5, awl-shaped, short. *Anthers* oblong, united at their base. *Germen* (see fig. 2.) roundish, inferior. *Style* (see fig. 2.) cylindrical, upright, longer than the stamens. *Stigma* cloven, in some flowers club-shaped, and only slightly notched. *Capsule* (fig. 7.) bladdery, roundish, with 5 angles, imperfectly 2-celled, opening by a broad hole at top, with very short valves. *Seeds* (fig. 6.) numerous, very minute, elliptic-oblong, shining.

Distinguished from other genera, with a superior calyx, in the same class and order, by the wheel-shaped, regular *corolla*, with a very short tube, and 5 long, strap-shaped *segments;* the united *anthers;* the bifid *stigma;* and the 2-celled *capsule.*

One species British.

JASI'ONE MONTA'NA. Mountain Sheep's Scabious. Hairy Sheep's Scabious. Common Sheep's-bit. Mountain Jastone.

SPEC. CHAR. Leaves strap-shaped, waved, hispid. Peduncles solitary, elongated. Bracteas smooth. Root annual.

Engl. Bot. t. 882.—Curt. Fl. Lond. t. 245 —Fl. Dan. t. 319.—Linn. Sp. Pl. p. 1317.—Huds. Fl. Angl. (2nd ed.) p. 377.—Willd. Sp. Pl. v. i. pt. II. p. 888.—Sm. Fl. Brit. v. i. p. 241.; Engl. Fl. v. i. p. 296.—With. (7th ed.) v. ii. p. 310.—Gray's Nat. Arr. v. ii. p. 411.—Lindl. Syn. p. 137.—Hook. Brit. Fl. p. 99.—Macr. Man. Brit. Bot. p. 146.—Lightf. Fl. Scot. v. i. p. 504.—Sibth. Fl. Oxon. p. 85.—Abbot's Fl. Bedf. p. 189.—Davies' Welsh Bot. p. 22.—Purt. Midl. Fl. v. ii. p. 418.—Relh. Fl. Cant. (3rd ed.) p. 92.—Hook. Fl. Scot. p. 76.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 733.—Fl. Devon. pp. 38 and 154.—Winch's Fl. of Northumberl. and Durh. p. 14.—Walker's Fl. of Oxf. p. 58.—Murr. Northern Fl. p. 135.—Irv. Lond. Fl. p. 145.—Luxf. Reig. Fl. p. 21.—Mack. Catal. of Pl. Irel. p. 23.; Fl. Hibern. p. 138.—*Rapunculus Scabiosæ capitulo cæruleo,* Bauh. Pin. p. 92.—Ray's Syn. p. 278.—*Scabiosa minima hirsuta,* Johnson's Gerarde, p. 723.

LOCALITIES.—In dry sandy fields, and on heaths; not uncommon.

Fig. 1. Calyx.—Fig. 2. Calyx, Stamens, and Pistil.—Fig. 3. Separate Stamen.—Fig. 4. Separate Flower.—Fig. 5. Involucrum and Receptacle, with all the flowers, but one, removed.—Fig. 6. Seeds.—Fig. 7. Capsule.—Figs. 5 & 6, *a little magnified.*

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* From *ion,* Gr. a *violet,* from the blue colour of the flowers; but applied by PLINY to an esculent plant. HOOKER.

† See folio 48, note †. ‡ See folio 79, *a.*

Annual.—Flowers from June to August.

Root somewhat woody, tapering, whitish, and fibrous. *Stems* several, nearly upright, from 6 inches to a foot or more high, simple or branched, rather rigid, roundish, leafy, clothed with short rough hairs. *Leaves* numerous, alternate, sessile, oblong, bluntish, wavy, entire or unequally serrated, gradually smaller from the root upwards. *Peduncles* naked, each bearing at its summit a round tuft of small, light-blue flowers, on short partial stalks; each *tuft* surrounded by several egg-shaped, smooth, *bracteas* (see fig. 5). *Calyx* (fig. 1.) deeply divided into 5 segments, permanent. *Corolla* (fig. 4.) of a light-blue colour, sometimes white, of 1 petal, divided nearly to the base into 5 long, narrow, strap-shaped, bluntish, upright segments. *Anthers* oblong, connected at the base. *Germen* roundish, below the corolla. *Style* thread-shaped, longer than the stamens. *Stigma* club-shaped, purplish. *Capsule* (fig. 7.) imperfectly 2-celled, many-seeded, opening at the top, and crowned by the proper, 5-toothed calyx. *Seeds* numerous, somewhat egg-shaped, shining.

A very pretty little plant, native of Europe, Siberia, and the north of Africa. It is closely related to *Phyteuma*, t. 205; but, as Sir J. E. Smith observes, the partitions of the *capsule*, and its terminal entire orifice, added to the combined *anthers*, afford perhaps good marks of generic distinction. In its general appearance it very much resembles a *Scabious*, as it does also starved specimens of the exotic *Gilia capitata*. The whole plant is milky, and is sometimes eaten by sheep. Linnæus says, that bees are particularly fond of the flowers. It varies much in size, and on the sea-coast of Cornwall it is only about an inch high when full grown, and the whole plant is very hairy.

Persoon observes, that the economy of the flowers of this genus is very singular. The florets of the disk have fertile anthers, which are united with each other only at the base, and club-shaped, barren, hairy pistils. On the contrary, the florets of the circumference, which are furnished with true emarginate stigmas, proper for fertilizing the seeds, have barren stamens; hence the proper stigmas receive the pollen from the club-shaped ones, upon which it is first received, as they pass through the anthers. See *Linn. Syst. Veg.* (15th edit.) p. 841; and *With. Bot. Arr.* (7th edit.) v. ii. p. 311.

I trust no apology is necessary for introducing here the following very beautiful lines, from the pen of that true poetess of nature, Mrs. Mary Howitt.

"On the third day of creation, before mankind had birth,
Ten thousand thousand flowers sprang up, to beautify the earth;
From the rejoicing earth sprang up each radiant, bursting bud;
And God looked down, at eventide, and saw that they were good.
And now, as then, ten thousand flowers from the gracious earth outburst,
And every flower that springeth up is goodly as the first:
The red rose is the red rose still; and from the lily's cup
An odour, fragrant as at first, like frankincense goes up.—
Oh, flowers, fair shining flowers, like crowned kings ye are!
Each, in the nature of its kind, unchanging as a star;—
Empires have fallen to decay, forgotten e'en in name—
All man's sublimest works decay, but ye are still the same!"

Literary Souvenir, 1837.



Myrrhis odorata Sweet Cicely. 4

Russell Del. Pub.d by W. Baxter Botanic Garden Oxford 1840 Mathers Sc.

MY'RRHIS*.

Linnean Class and Order. PENTA'NDRIA†, DIGY'NIA.

Natural Order. UMBELLI'FERÆ‡, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.—Lindl. Syn. p. 111; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—UMBELLATÆ, *Linn.*—ROSALES; sect. ANGELICINÆ; type, SMYRNIACEÆ; subtype, SCANDICIDÆ; Burn. Outl. of Bot. pp. 614, 700, 780, & 781.

GEN. CHAR. *Flowers* imperfectly separated; the innermost barren. *Calyx* an obsolete margin. *Corolla* (fig. 1.) of 5, somewhat unequal, uniform, inversely egg-shaped, emarginate petals, with an inflexed taper point. *Filaments* (see fig. 1.) 5, thread-shaped, spreading, as long as the petals, or longer. *Anthers* roundish. *Germen* (fig. 2.) inferior, linear-oblong, somewhat club-shaped, blunt, furrowed, smooth, slightly compressed. *Styles* (see fig. 2.) 2, awl-shaped, a little spreading, very tumid, and almost globose, at the base. *Stigmas* blunt, or slightly capitate. *Floral Receptacle* wanting. *Fruit* (figs. 3 & 4.) strap-spear-shaped, compressed at the sides, a little curved, deeply furrowed, without a beak, the summit crowned with the thick bases of the spreading, permanent *styles* *Carpels* (see figs. 3 & 4.) with a double membrane, the outer one acutely keeled by 5 equal, sharp ridges, which are hollow inside; the inner one adhering closely to the seed. *Vittæ* wanting. *Seed* involute. *Universal involucrum* none; *partial involucrum* many-leaved. *Flowers* white.

The obsolete *calyx;* the inversely egg-shaped, emarginate, inflexed *petals;* the laterally compressed, beakless *fruit*, with a deep furrow at the suture; and the *carpels* with 5 very prominent, sharp, keeled ridges, with the interstices destitute of *vittæ*, will distinguish this from other genera in the same class and order.

One species British.

MY'RRHIS ODORA'TA. Sweet Cicely. Great Chervil. Sweet Chervil. Myrrhe. Sweet Fern.

SPEC. CHAR. Leaves large, rather villose beneath, very compound. Fruit large, with very short ribs, and deep furrows between them.

Scop. Fl. Corn. (2nd ed.) v. i. p. 207.—Sm. Engl. Fl. v. ii. p. 50.—With. (7th ed.) v. ii. p. 390.—Gray's Nat. Arr. v. ii. p. 503.—Lindl. Syn. p. 125.—Hook. Brit. Fl. p. 132.—Macr. Man. Brit. Bot. p. 106.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 369.—Grev. Fl. Edin. p. 67.—Winch's Fl. of Northumbl. and Durham, p. 18.—Walker's Fl. of Oxf. p. 77.—Dick. Fl. Abred. p. 31.—Mack. Fl. Hibern. p. 127.—*Myrrhis major vulgaris, sive Cerefolium majus*, Park. Theat. Bot. p. 935.—*Scandix odorata*, Linn. Sp. Pl. p. 368.—Engl. Bot. t. 697.—Jacq. Fl. Aust. vol. v. p. 48. App. t. 37.—Hluds. Fl. Angl. (2nd ed.) p. 124.—Willd. Sp. Pl. v. i. pt. ii. p. 1449.—Sm. Fl. Brit. v. i. p. 323.—Lightf. Fl. Scot. v. i. p. 166.—Sibth. Fl. Oxon. p. 100.—Davies' Welsh Bot. p. 29.—Purt. Midl. Fl. v. i. p. 153.—Perry's Pl. Varv. Selectæ, p. 26.—Irv. Lond. Fl. p. 234.—*Chærophyllum odoratum*, Hook. Fl. Scot. p. 93.—*Cerefolium magnum, sive Myrrhis*, Johnson's Gerarde, p. 1039.

Fig. 1. A Flower.—Fig. 2. Germen.—Fig. 3. Fruit.—Fig. 4. Transverse section of ditto.—Figs. 1 & 4, *slightly magnified.*

* From *myron*, Gr. *perfume;* or *myrrha*, Gr. *myrrh;* scent of plant. Don

† See folio 48, note †. ‡ See folio 235, *a*.

Localities.—In mountainous pastures, banks of rivers, &c. especially in the north of England, and lowlands of Scotland.—*Cheshire;* Banks of rivers near Stockport: Mr. G. Holme. Very common by the banks of the river Goyt: N. B. G.—*Cumberland;* Woods on the E. side of Derwentwater, looking very like a genuine native: Mr. H. C. Watson, in N. B. G. Common in orchards: Hutchinson. About Keswick: D. Turner, Esq.—*Derbysh.* Banks of the Derwent above Chatsworth; about Buxton; and in the little inclosed meadows about Poole's Hole at Buxton: B. G. Banks of the Goyt river, just below Whaley Bridge; by the Derwent near Duffield; Codnor Breach; and Wirksworth: N. B. G.—*Durham;* In Dalton Dene; in Cawsey; Beamish; Urpeth; and every other wood on the Team; on the banks of Browney, near Coldpighill, and ruins of Finchall Abbey; also in Weardale, frequent: N. J. Winch, Esq. In the vicinity of Darlington, and Eglestone: Rev. J. Harriman. Near Harperley; Lanchester Ford; and on the banks of the Wear above Stanhope: N. J. Winch, Esq.—In *Lancashire,* frequent: Hudson.—*Northumberland;* Banks of the Tyne at Low Park End; and in Tucket Wood: N. J. Winch, Esq. In the woods at Wallington, and at Netherwitton: W. C. Trevelyan, Esq.—*Notts;* Near Bramcote: N. B. G.—*Shropsh.* At White Ladies, near Boscabel: B. G. On Benthall Edge, near Coalbrookdale: N. B. G.—*Somersetsh.* Hedges by the road-side between West-street, Bridgewater, and Enmore: N. B. G.—*Staffordsh.* At Tixall, near Stafford: B. G.—*Warwicksh.* At Studley Castle; and Balsall Temple: T. Purton, Esq.—*Westmoreland;* Kendal: N. B. G.—*Worcestersh.* In an orchard at the top of Southstone's Rock, near Shelsey Wash: Mr. Ballard.—*Yorksh.* Meadows between Morton and Rushworth; in the wood at Knaresborough, where the dripping well is; upon the side of every rivulet in Wensley Dale; Hackfall; banks of the Ure, from Wensley Dale for some miles eastward, in plenty; about Coxwold; in many parts of Craven; and near Leeds: B. G. In Stackhouse Lane, and other places about Settle; and by the Swale under Whitcliffe Scars near Richmond: N. B. G.—In many parts of WALES, and of SCOTLAND; more rare in IRELAND.

Perennial.—Flowers from May to July.

Root tapering, thick, fleshy, branched, with a sweet aromatic taste, like every other part of the plant. *Stem* 2 or 3 feet high, sometimes more, round, leafy, striated, hollow. *Leaves* large, bright green, 2, 3, or 4 times compound, with pinnatifid, pointed, serrated, slightly hairy leaflets; the root-leaves on long cylindrical petioles; the rest with very short ones, which are dilated at the base, with membranous edges, so as to be almost sessile. *Umbels* large, terminal, and lateral, both universal and partial ones of many downy *rays*. *Universal involucrum* none; *Partial ones* of about 5, spear-shaped, tapering, whitish, membranous, finely fringed leaves. *Flowers* numerous, white; many of those in the centre abortive, with stamens only; several in the circumference fertile. *Germen* (fig. 2.) oblong, a little hairy. *Fruit* (fig. 3.) nearly an inch long, dark brown, spear-shaped, pointed, not beaked, crowned with the two spreading styles. *Carpels* each with 3 very prominent, compressed, dorsal ridges, rough, like fine saws, near the summit.

This plant is a native of Middle and South Europe, from Spain to Asia Minor; Germany, Switzerland, Austria, the South of France, and the North of Italy; it is also to be found in Chili. It was one of the old medicinal plants, but it is now disused. The seeds have the flavour of Anise, and are used in the North of England for polishing and perfuming oak floors and furniture. Formerly the young leaves and seeds were put into salads, and the roots were boiled and eaten, cold or in tarts, and in a variety of sauces. In Germany, it is said to be still used in soups.

Puccinia Umbelliferárum, and *Uredo Petroselini,* of Hook. Brit. Fl. are parasitic on the stems and leaves of this plant, in the Summer and Autumn. The leaves very much resemble the fronds of some of the ferns, and when the latter parasite occurs (as it often does) in small yellow spots on their under surface, it very much increases that resemblance.


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Cochlearia officinalis.
Pub.d by W Baxter.
Common Scurvy-grass.
Botanic Garden Oxford 1810
Watkins Sc.

COCHLEA'RIA *

Linnean Class and Order. TETRADYNA'MIA †, SILICULO'SA ‡.

Natural Order. CRUCI'FERÆ §, Juss. Gen. Pl. p. 237.—Sm. Gram. of Bot. p. 138.; Engl. Fl. v. iii. p. 153.—Rich. by Macgilliv. p. 498.—CRUCIFERÆ; subord. PLEURORHIZEÆ ‖; tribe, ALYSSINEÆ; Lindl. Syn. pp. 20, 21, & 25.; Introd. to Nat. Syst. of Bot. pp. 14 to 18.—Loud. Hort. Brit. pp. 498 & 499.; Mag. Nat. Hist. v. i. pp. 143 & 240.—Don's Gen. Syst. of Gard. and Bot. v. i. pp. 146 & 147.—Mack. Fl. Hibern. pt. i. p. 16.—Hook. Brit. Fl. (4th ed.) p. 397.—ROSALES; subord. RHŒADOSÆ; sect. RHÆADINÆ; type, BRASSICACEÆ; subtype, ARABIDÆ; Burn. Outl. of Bot. pp. 614, 784, 847, 854, & 856.—SILIQUOSÆ, *Linn.*

GEN. CHAR. *Calyx* (fig. 1, *a.*) inferior, of 4, egg-shaped, concave, spreading sepals, equal at the base, deciduous. *Corolla* (see fig. 2, *b.*) cruciform, of 4, inversely egg-shaped, entire, spreading petals, twice the length of the calyx, with short claws. *Filaments* (see fig. 2, *c.* and fig. 3.) 6, 2 shorter than the other 4, awl-shaped, toothless, incurved, as long as the calyx. *Anthers* roundish. *Germen* (see fig. 2, *d.* and fig. 3.) roundish. *Style* very short, permanent. *Stigma* blunt. *Silicula (pouch)* (fig. 5.) sessile, globose, egg-shaped, or oblong, turgid, rugged, veiny, tipped with the style, of 2 cells, and 2 concave, ventricose, scarcely keeled, valves; partition orbicular or oblong, membranous, generally as wide as the valves (see figs. 6 & 7). *Seeds* (see figs. 6, 7, & 9.) many, not bordered. *Cotyledons* (fig. 8.) flat, accumbent (o=).

The spreading *calyx;* simple *filaments;* nearly entire *pouch*, with ventricose valves; and numerous, not bordered *seeds;* will distinguish this from other genera, with accumbent cotyledons, in the same class and order.

Five species British.

COCHLEA'RIA OFFICINA'LIS. Officinal Scurvy-grass. Common Scurvy-grass. Scruby-grass. Spoonwort.

SPEC. CHAR. Radical-leaves stalked, roundish heart-shaped, entire or sinuated. Stem-leaves sessile, egg-shaped, somewhat sinuated. Pouch globose.

Engl. Bot. t. 551.—Hook. Fl. Lond. t. 148.—Wood. Med. Bot. v. i. p. 86. t. 29.—Fl. Dan. t. 135.—Linn. Sp. Pl. p. 903.—Huds. Fl. Angl. (2nd ed.) p. 283.—Willd. Sp. Pl. v. iii. pt. i. p. 448.—Sm. Fl. Brit. v. ii. p. 688; Engl. Fl. v. iii. p. 175.—With. (7th ed.) v. iii. p. 761.—Lindl. Syn. p. 27.—Hook. Brit. Fl. p. 298.—Macr. Man. Brit. Bot. p. 17.—Bryant's Fl. Diætetica, p. 96.—Lightf. Fl. Scot. v. i. p. 342.—Thornt. Fam. Herb. p. 608, with a figure.—Davies' Welsh Bot. p. 62.—Purt. Midl. Fl. v. ii. p. 738.—Hook. Fl. Scot. p. 195.—Grev. Fl. Edin. p. 140.—Fl. Dev. pp. 109 & 188.—Johnst. Fl. Berw. v. i. p. 142.—Winch's Fl. Northumbl. & Durh.

Fig. 1. *a.* Calyx; *b.* a Petal.—Fig. 2. A single Flower; *a.* a Sepal; *b.* a Petal; *c.* Stamens; *d.* Pistil.—Fig. 3. Stamens and Pistil.—Fig. 4. A single Stamen.—Fig. 5. Pouch.—Fig. 6. Pouch, with one of the valves separated.—Fig. 7. Transverse section of a Pouch.—Fig. 8. A Seed, with the testa removed to show the accumbent cotyledons.—Fig. 9. Seeds.—*All, more or less, magnified.*

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* From *cochleare*, a *spoon;* the root-leaves of many of the species assuming the form of a spoon or shell.

† See f. 38, n. †. ‡ See f. 107, n. ‡. § See f. 38, *a.* ‖ See f. 141, n. ‖.

p. 43.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 188.—Loud. Encycl. of Gard. (new edit. 1835.) p. 866. paragr. 4475.—Walker's Fl. Oxf. p. 185.—Lindl. Fl. Med. p. 91.—Perry's Pl. Varvic. Selec. p. 54.—Dick. Fl. Abred. p. 45.—Irv. Lond. Fl. p. 163.—Mack. Catal. Pl. Irel. p. 60; Fl. Hibern. p. 21.—*Cochlearia*, Ray's Syn. p. 302.—*Cochlearia rotundifolia*, Johnson's Gerarde, p. 401.—Gray's Nat. Arr. v. ii. p. 695.

Localities.—On the sea-coast, in stony or muddy places, common; sometimes also in watery spots on inland mountains.—*Cheshire;* Sea-coast below Parkgate: Mr. Bradbury. Shore of the Mersey: Mr. H. C. Watson, in N. B. G.—*Cornwall;* Rocks at Polperro, and elsewhere: Mr. E. Foster, jun. Sea-shore; near Castle Treryn: N. B. G.—*Cumberland;* Among rocks at Cross Fell: Hutchinson.—*Derbysh.* Mountains round Castleton: D. Turner, Esq. In a small vale below Peveril Castle, and on the Castle walls: Mr. H. C. Watson, in N. B. G. Stony Middleton: Howitt, in N. B. G.—*Devon;* Topham Marshes; the Hoe, Plymouth; walls at Torquay, and between Teignmouth and Dawlish on the Cliffs: Rev. A. Neck. On the coast; at Biddeford, near the bridge; and on a stone wall between Oakhampton and Lifton: B. G. Barnstable: N. B. G.—*Dorset;* Common on the Cliffs, as well as on the sandy shore: B. G.—*Durham;* Marsden Rocks; sea-coast, and shores of Tyne, Wear, Tees, &c.; on the wet ground near the Wheysike House, and at Cauldron Snout, Teesdale: N. J. Winch, Esq.—*Hants;* By the side of Southampton Water, about a mile from the town: N. B. G.—*Lancash.* On a mountain above Coniston Lake: B. G. Sea-coast and banks of the Mersey: Mr. H. C. Watson. Southport: N. B. G.—*Norfolk;* Salt-marshes at Yarmouth, and Stokesby: B. G. In Salt-marshes at Caister: 1836, Mr. Manners, in N. B. G.—*Northumberland;* On rocks and marshy places on the sea-coast, common; shores of Tyne; Fern Islands, abundant; naturalized on rocks at Hornham; wet places near Coal Cleugh: N. B. G.—*Notts;* In several places on the walls at Woolaton: B. G.—*Somersetsh.* Chedder Cliffs: B. G.—In *Sussex.*—*Warwicksh.* Packington: B. G.—*Westmoreland:* Kirkston Fell near Ambleside: B. G.—*Yorksh.* Sea-shore; Ingleborough Hill; very common near rivulets in Craven; Wensley Dale; above Pately Bridge near Ripon; woods near Bolton Abbey; and banks of the Wharf as far down as Ilkley: B. G. Richmond; and Limestone tract near Leeds: N. B. G.—WALES. *Anglesey;* In muddy ditches on the sea-coast; on the roofs of houses; and old walls in Beaumares; in Priestholm Island: Rev. H. Davies.—*Caernarvonsh.* From the shore to the higher mountains, at all elevations: N. B. G. Rocks of Clogwyn y Garnedd: B. G.—*Glamorgansh.* Banks of the Tawey, between Swansea and Landore, plentifully: B. G.—*Monmouthsh.* Near Poutnewydd Works: N. B. G.—Frequent in SCOTLAND. And in IRELAND; about Coolum, near Waterford: Right Hon. the Countess of Carrick.

Annual.—Flowers in April and May.

Root fibrous. *Stem* angular, nearly upright, branched; from 3 inches to a foot high. *Lower leaves* on long petioles, roundish-heart-shaped, wavy; *upper ones* sessile, smaller, more oblong, sinuated, or deeply toothed, clasping the stem by their base. *Flowers* white, in numerous corymbose tufts, which become elongated and racemose as the fruit ripens. *Pouch* (fig. 5.) nearly globular, obscurely veiny, either not notched at the end, or scarcely sensibly so, tipped with the short *style;* partition double, broadly egg-shaped. *Seeds* roughish.

Plant smooth, succulent, and of a bright glossy green; varying much in size, according to its situation. Dr. Withering has described a singular metamorphosis of this plant in the 7th edition of his *Botanical Arrangements*, v. iii. p. 762.

The common *Scurvy-grass* is native on sea-shores throughout the north of Europe. It was once in great repute as an antiscorbutic; and is said to be a powerful remedy in the pituitous asthma, and in what Sydenham calls the scorbutic rheumatism. A distilled water, and a conserve, are prepared from the leaves, and its juice is prescribed along with that of oranges by the name of anti-scorbutic juices. It may be eaten as a salad.—Cows eat it; horses, goats, and sheep refuse it.



Myriophyllum verticillatum. Whorled Water-Milfoil 2.

Mathews. Del & Sc Pub.d by W Baxter Botanic Garden. Oxford. 1840

MYRIOPHY'LLUM *.

Linnean Class and Order. MONŒCIA†, POLYA'NDRIA.

Natural Order. HALORA'GEÆ, *Dr. R. Brown.*—Lindl. Syn. p. 110; Introd. to Nat. Syst. of Bot. p. 57.—Loud. Hort. Brit. p. 514.—Don. Gen. Syst. of Gard. and Bot. v. ii. p. 700.—Mack. Fl. Hibern. p. 112.—Hook. Brit. Fl. (4th ed.) p. 405.—HYGROBIEÆ, Rich. by Macgilliv. p. 521.—NAIADES, Juss. Gen. Pl. p. 18.—Sm. Gram. of Bot. p. 66.—QUERNEALES; sect. HIPPURINÆ; Burn. Outl. of Bot. v. ii. pp. 523 & 576.—INUNDATÆ, *Linn.*

GEN. CHAR. *Flowers* monœcious, rarely united. *Barren Flowers* (fig. 2). *Calyx* (fig. 1.) inferior, 4-parted. *Corolla* (see fig. 2.) of 4 inversely egg-shaped, fugitive petals. *Filaments* (see fig. 2.) 4, 6, or 8, hair-like, flaccid, longer than the calyx. *Anthers* oblong, vertical. *Fertile Flowers* (see fig. 4.) below the others. *Calyx* adhering to the germen (see fig. 4.), with a 4-lobed limb. *Corolla* none. *Styles* none. *Stigmas* (see fig. 4.) 4, downy. *Fruit* (see figs. 5 & 6.) separable into 4 hard, 1-seeded, indehiscent *nuts*. *Albumen* almost absent.

The 4-parted *calyx;* and the 4-petaled *corolla*, with 4, 6, or 8 stamens of the *sterile flowers;* and the 4 *stigmas;* and 4, 1-seeded, indehiscent *nuts* of the *fertile flowers;* will distinguish this from other genera in the same class and order.

Three species British.

MYRIOPHY'LLUM VERTICILLATUM. Whorted Water-Milfoil.

SPEC. CHAR. Leaves finely cut into hair-like opposite segments. Flowers in axillary whorls. Floral-leaves all pinnatifid, much longer than the flowers, and hardly distinguishable from the other leaves.

Engl. Bot. t. 218.—Fl. Dan. t. 1046.—Linn. Sp. Pl. p. 1410.—Huds. Fl. Angl. (2nd ed.) p. 420.—Willd. Sp. Pl. v. iv. pt. 1. p. 407.—Sm. Fl. Brit. v. iii. p. 1022.; Engl. Fl. v. iv. p. 143.—With. (7th ed.) v. ii. p. 511.—Gray's Nat. Arr. v. ii. p. 557.—Lindl. Syn. p. 110.—Hook. Brit. Fl. p. 406.—Macr. Man. Brit. Bot. p. 80.—Sibth. Fl. Oxon. p. 132.—Abbot's Fl. Bedf. p. 209.—Davies' Welsh Bot. p. 89.—Relh. Fl. Cant. (3rd ed.) p. 393.—Purt. Mid. Fl. v. iii. p. 69.—Rev. G. E. Smith's Pl. S. Kent, p. 66.—Winch's Fl. Northumbl. and Durh. p. 61.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 703.—Walker's Fl. of Oxf. p. 279.—Perry's Pl. Varvic. Sel. p. 78.—Bab. Fl. Bath. Supp. p. 78.—Irv. Lond. Fl. p. 200.—Mack. Catal. Pl. Irel. p. 82.; Fl. Hibern. p. 112.—*Pentapterophyllon aquaticum flosculis ad foliorum nodos*, Ray's Syn. p. 316.—Deering's Cat. Stirp. Nott. p. 163.

LOCALITIES.—In ponds and watery ditches; not common.—*Oxfordsh.* By the bridge on the Botley-road, near the lane going to Medley: Dr. SIBTHORP. Ditches near Port Meadow: W. B.—*Berks;* Ditches near Bray; and near Eton: B. G.—*Bedfordsh.* Common: Rev. C. ABBOT.—*Bucks;* Ponds and ditches near Eton: B. G.—*Cambridgesh.* In a ditch on Cambridge Common; Coldham Common, by the foot-path to Teversham; Quey: Rev. R. RELHAN.—*Cheshire;* Stockport Little Moor, in ponds: B. G.—*Derbysh.* Pond near Swarkeston Bridge: Rev. A. BLOXAM.—*Dorset;* Boggy ditch, near Wareham: B. G.—*Durham;* At Polam: Mr. BACKHOUSE. The limit of its range to the

Figs. 1 & 3. Calyx.—Fig. 2. A Barren Flower.—Fig. 4. A Fertile Flower.—Fig. 5. Fruit.—Fig. 6. A transverse section of the Fruit, which separates into 4 hard nuts.—*All*, except fig. 5, *a little magnified.*

* From *myrios*, Gr. a *myriad;* and *phyllon*, Gr. a *leaf;* in reference to the numerous divisions of the leaves. DON. † See folio 83, note †.

North: N. J. Winch, Esq.—*Essex;* About Woodford; common: Mr R. Warner. At Broomfield, &c.: *Mag. Nat. Hist.*—*Hampsh.* Ditches communicating with the Avon near Sopley: B. G. Woolmer Forest: *Lond. Fl.*—*Kent;* Ditches between Deal and Sandwich: B. G. Plentiful in Romney Marsh: B. G. Ditches of Graveney Marsh, near Faversham: E. Jacob, Esq.—*Lancash.* Southport: G. Crosfield, Esq.—*Leicestersh.* In the Soar near Loughborough, but rare: B. G.—*Lincolnsh.* Near Boston: B. G.—*Middlesex;* By where the New River runs under ground at Stoke Newington; and in a little ditch at the W. end of the village: B. G.—*Norfolk;* At Hedenham; ponds at Lakenham; Caister, and elsewhere near Yarmouth; and ditches adjoining Acle Bridge: B. G. Ditches at Gorleston; Bradwell; Belton, &c.: N. B. G.—*Northumberland;* At Walker, below Newcastle: R. Bowman, in N. B. G.—*Notts;* In the Trent below Colwick on the opposite side of the river: Dr. Deering. In a pool in Nottingham Meadows, plentifully: N. B. G.—*Shropsh.* Forton Moors, near Newport: N. B. G.—*Somersetsh.* In the ponds at Lacock: *Fl. Bath.* Burtle Turf-moor; Middlezoy Sedgmoor: N. B. G.—*Staffordsh.* Aqualate Mere: N. B. G.—*Suffolk;* At Bungay; about Bury; Middleton; Wenhaston; Bradwell; and Gorleston: N. B. G.—*Surrey;* Ditches at Battersea: N. B. G.—*Sussex;* Lewes and Henfield Levels: N. B. G.—*Warwicksh.* Ditch near the Avon at Newbold, near Rugby: W. B. Packington: B. G.—In *Worcestershire:* N. B. G.—*Yorksh.* Ripon; near Bolton; Potteric Car, near Doncaster; ditches about Beverley; and near Laugton, ten miles from Richmond: N. B. G.—WALES. *Anglesey;* In Cors ddy gai; ditch between Gmeunfynydd and Cors Llechylched: B. G.—SCOTLAND. *Orkney Isles;* Loch of Airie, Stronsa: N. B. G.—IRELAND. About Limerick; and in Ballyphehane-bog, near Cork: *Fl. Hibern.*

Perennial.—Flowers in July and August.

An aquatic plant, floating under water. *Stem* round, smooth, branching, deep green. *Leaves* finely pinnatifid, smooth, spreading, 4 or 5 in each whorl; those on the flowering part of the stem or branches, which rises 5 or 6 inches above the water, less deeply cut. *Flowers* small, in whorls, in the axils of the emersed leaves; the upper ones with stamens only; the lowermost less numerous, with pistils only; intermediate ones often with both. *Petals* greenish. *Anthers* yellow.

Another species of this genus, *Myriophyllum alterniflorum* of Decandolle, has been lately added to the British Flora by the Rev. Andrew Bloxam, M. A. of Worcester College, Oxford. This gentleman discovered it first about four years ago, at Whixal Moss, Salop; and again on the 20th of June, 1839, in abundance, in a pond near his own residence at Twycross, Leicestershire.—Mr. C. C. Babington found it in Guernsey in 1838. Mr. Bloxam has kindly favoured me with specimens of it, from Twycross.

The *Natural Order*, Haloragеæ, is composed of polypetalous, dicotyledonous *herbs* or *under shrubs*, the greater part of which are inhabitants of water and moist places. Their *leaves* are opposite, alternate, or in whorls. Their *flowers* axillary, sessile, or in terminal spikes, occasionally monœcious or dicecious. The *calyx* tube is adherent to the *ovary;* and its *limb* is minute, 4-parted, or almost wanting. The *petals* are minute, and are inserted into the mouth of the calyx, or wanting. The *stamens* also arise from the mouth of the calyx, and are either equal in number to its lobes, or double as many, rarely fewer. The *ovary* adheres inseparably to the calyx, and has one or more cells. The *stigmas* are sessile, and equal in number to the cells of the ovary. The *fruit* is dry, and indehiscent; of one or more cells. The *seed* is solitary, and pendulous; with fleshy *albumen;* a straight *embryo;* a superior *radicle;* and minute *cotyledons*.—The plants contained in this order are not known to posses any medical properties. The only British genera are *Hippuris*, t. 49; *Myriophyllum*, t. 376; and *Callitriche*.



Typha angustifolia. Narrow leaved Reed-mace. 11

Russell Del. Hab.d by W. Baxter Botanic Garden Oxford 1840. Mathews Sc.

TY'PHA*.

Linnean Class and Order. MONŒCIA†, TRIA'NDRIA.

Natural Order. TYPHA'CEÆ, *Dec.*—Lindl. Syn. p. 247; Introd. to Nat. Syst. of Bot. p. 285.—Mack. Fl. Hibern. p. 262.—TYPHÆ, Juss. Gen. Pl. p. 25.—Sm. Gram. of Bot. p. 67.—TYPHINÆ, Rich. by Macgilliv. p. 389.—Loud. Hort. Brit. p. 540.—AROIDEÆ, sect. 3. R. Brown, Prod. 338.—Hook. Brit. Fl. (4th ed.) p. 422.—JUNCALES; sect. TYPHINÆ; type, TYPHACEÆ; Burn. Outl. of Bot. v. i. pp. 403, 404, & 407.—CALAMARIÆ, *Linn.*

GEN. CHAR. *Flowers* numerous, monœcious, collected into very dense, soft, cylindrical, terminal *spikes* or *catkins*. *Sterile Flowers* (see figs. 1, 2, & 3.) numerous. *Calyx* (see figs. 2 & 3.) of 3 imperfect sepals. *Corolla* none. *Anthers* (see fig. 2.) 3, more or less drooping, oblong, blunt, furrowed, on one common *filament*. *Fertile Flowers* (see figs. 4, 5, & 6.) numerous, in the lower part, continuous or interrupted, of the same *catkin*. *Calyx* (see fig. 5.) of several, hair-like bristles, surrounding the stalk of the fruit. *Germen* (see fig. 6.) superior, stalked, elliptic-oblong. *Style* hair-like. *Stigma* simple. *Fruit* (see fig. 6.) indehiscent, 1-celled, and 1-seeded, crowned with the style, and beset with several hair-like bristles, attached to the base of its stalk.

The cylindrical *catkin;* the *sterile flowers* of 3 imperfect sepals, with 3 anthers on one filament; and the *fertile flowers* of several, hair-like sepals, surrounding the stalk of the fruit; will distinguish this from other genera in the same class and order.

Three species British.

TY'PHA ANGUSTIFO'LIA. Narrow-leaved Reed-mace §. Lesser Cat's-tail.

SPEC. CHAR. Leaves linear, slightly semicylindrical, channelled above. Sterile and fertile Catkins a little distant from each other; both cylindrical.

Engl. Bot. t. 1456.—Curt. Fl. Lond. t. 169.—Linn. Sp. Pl. p. 1377, excl. var. β.—Huds. Fl. Angl. (2nd ed.) p. 400, excl. var. β.—Willd. Sp. Pl. v. iv. pt. 1. p. 198.—Sm. Fl. Brit. v. iii. p. 959.—Engl. Fl. v. iv. p. 72.—With. (7th ed.) v. ii. p. 140.—Gray's Nat. Arr. v. ii. p. 40.—Lindl. Syn. p. 247.—Hook. Brit. Fl. p. 386.—Macr. Man. Brit. Bot. pp. 243 & 244.—Sibth. Fl. Oxon. p. 413.—Abbot's Fl. Bedf. p. 199.—Davies' Welsh Bot. p. 84.—Purt. Midl. Fl. v. ii. p. 438.—Relh. Fl. Cant. (3rd ed.) p. 375.—Hook. Fl. Scot. p. 259.—Rev. G. E. Smith's Pl. S. Kent, p. 60.—Winch's Fl. of Northumbl. and Durh. p. 58.—Walker's Fl. of Oxf. p. 264.—Perry's Pl. Varvic. Sel. p. 74.—Pampl. Pl. of Battersea, p. 15.—Bab. Fl. Bath. Supp. p. 97.—Prim. Fl. Sarn. p. 99.—Irv. Lond. Fl. p. 87.—Cow. Fl. Guide, p. 52.—*Typha palustris media*, Ray's Syn. p. 436.—*Typha palustris clavâ gracili*, Bauh. Pin. p. 20.

LOCALITIES.—In ponds, watery ditches, and margins of rivers; rather rare.—*Oxfordsh.* Cowley, near the London-road: Dr. SIBTHORP. Ambrosden Fish-pond: G. WOODWARD, Esq.—*Berks;* At Cumnor, near Oxford, in a large old

Fig. 1. Sterile Catkin.—Figs. 2 & 3. Separate Staminiferous Flowers.—Fig. 4. Fertile Catkin.—Fig. 5. A few Pistiliferous Flowers.—Fig. 6. Germen, Style, and Stigma.—Figs. 2, 3, 5, & 6, *magnified.*

* From *tiphos*, Gr. a *bog* or *marsh;* in allusion to the natural situation of these plants. † See folio 83, note †. ‡ See folio 276, *a*.

§ From its resemblace to a mace.

fish-pond, known there by the name of Lady Dudley's Pond, but which is now nearly filled up with moss, &c. and has become nothing more than a bog, plentifully: 1838, W. B.—*Bedfordsh.* Pools on Knotting-Green: Rev. C. Abbot.—*Cambridgsh.* Brick-kilns on the Chesterton road; sides of the Cam, below Ditton; Swan Pond, &c.: Rev. R. Relhan. Pools in a brick-field beyond the Observatory; and in a pond nearly opposite the 'Cherry-Tree,' on the road to Oxford: N. B. G.—*Cheshire;* In a pond by the footpath from New Ferry to Park-gate, about half way: B. G.—*Cornwall;* Between Falmouth and Helford: *Tour.*—*Derbysh.* Pond between Repton Shrubs and Milton: Rev. A. Bloxam.—*Dorset;* Ditches communicating with the Stour near Sturminster Newton: B. G.—*Durham;* In a pond near the Frier's Goose, below Gateshead; in a pond by the road to Nesham from Darlington; and in Corn-Mill Dam, near Team: N. J. Winch, Esq.—*Essex;* Bog on Epping Forest near Salter's Buildings, Walthamstow; and Marsh ditches by the right-hand side of the Lee Bridge road: B. G. Sandon and Banbury: M. N. H.—*Kent;* In the middle of Woolwich Common; and in Romney Marsh: B. G. In dykes, abundant: Rev. J. E. Smith. In the water near the mill in Buckhurst Park: *Fl. Ton.* In the ditches at Ewell and Nagden, near Faversham: E. Jacob, Esq.—*Leicestersh.* In the Soar near Leicester, and many other parts of the river: B. G.—*Middlesex;* About London: Sir W. J. Hooker.—*Norfolk;* Between Norwich and Hingham; and about Bungay. Common round Yarmouth: B. G. Abounds in a clay-pit adjoining the Vicarage garden, and is frequently mixed with *T. latifolia* in other places about Stow: N. B. G.—*Notts;* Wollaton; Bulwell; between Bulwell and Popplewick; near Eastwood; and King's Meadows, near Nottingham: N. B. G.—*Shropsh.* Berrington Pool; and Bomere Pool: N. B. G.—*Sometsetsh.* Ditches at Burnham and Wembdon, not uncommon: N. B. G. In one of the Locks at Combe Bay; and in the Canal at Chippenham: *Fl. Bath.*—*Suffolk;* Great Welnetham; Culford near Bury; pits of water about Swefling, Glemham, &c. Clay-pits near Bungay; Yoxford; and about Beceles, and Halesworth; frequent: B. G.—*Surrey;* Battersea; ponds on Wandsworth Common; and in Letchmere, plentifully: Mr. W. Pamplin, jun.—*Sussex;* Not uncommon in the County; at Oare near Hastings: B. G.—*Warwicksh.* In a pit on Alne Hill, near Shelfield: *Midl. Fl.*—*Worcestersh.* At Clifton-on-Teme; in a small pond on the Moors, Worcester; and in the pool at Ham Castle: N. B. G.—*Yorksh.* Near Scarborough: Rev. E. F. Witts. Old marl-pits between York and Market Weighton; and Seamer Mere near Scarborough, plentifully: B. G.—WALES. *Anglesey.*—SCOTLAND. *Fifesh.* Loch of Lindore, abundantly: D. Don.—IRELAND. Ditch near the turnpike-gate between Belfast and Carrickfergus; in Lough Hanay, between Lisburn and Saintfield; and in the lake at Sandy Mount: *Fl. Hibern.*

Perennial.—Flowers in June and July.

Root creeping, thick, and whitish, with many fibres. *Herb* smooth. *Stem* from 3 to 5 feet high, upright, round, solid, perfectly straight and simple, without joint or knot, leafy at the bottom only. *Leaves* several, sheathing at the base, upright, from 2 to 3 feet or more long, and a quarter of an inch wide, semicylindrical below, flat, and strap-shaped towards the end. *Spikes* or *Cathins* terminal, slender, with a smooth naked portion of the stem, from half an inch to an inch, between the sterile and fertile ones. *Common receptacle* of both rather scaly.

A variety, with leaves nearly half an inch broad, occurs on the margin of the River Cherwell, between Oxford and Marston, and also by the side of the River Isis, between Sandford and Nuneham; and I have observed the same variety, growing with *T. latifolia*, in an old marl-pit, on Mr. Robins' farm, near Rugby, Warwickshire.

The down of the *fertile catkins*, both of this and of *T. latifolia*, has been used to stuff cushions and mattresses. The *pollen* is inflammable, and is often substituted for the pollen-like dust of the *Lycopodia* in pyrotechnic exhibitions. It also forms a stimulating application serviceable in the cure of indolent sores. The leaves are put by coopers between the staves of their casks to prevent leakage; they are also made into mats, or coarse chair-bottoms, and form good thatch. In Germany the young roots are eaten in salads. The *fertile catkins* matured form curious and beautiful objects. See *Burn. Outl.* and *With. Bot. Arr.*



Nepeta Cataria. Cat-mint. L

Fitzsell Del.. Pub.d by W.Baxter Botanic Garden Oxford 1840. Mathews Sc.

NE'PETA*.

Linnean Class and Order. DIDYNA'MIA†, GYMNOSPE'RMIA‡.

Natural Order. LABIA'TÆ§, Juss. Gen. Pl. p. 110.—Sm. Gram. of Bot. p. 99.; Engl. Fl. v. iii. p. 63.—Bentham, in Bot. Regist. (1829).—Lindl. Syn. p. 196.; Introd. to Nat. Syst. of Bot. p. 239.—Rich. by Macgilliv. p. 439.—Loud. Hort. Brit. p. 528.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 665.—Mack. Fl. Hibern. p. 209.—VERTICILLATÆ of *Linnæus.*—SYRINGALES; subord. PRIMULOSÆ; sect. MENTHINÆ; type, MENTHACEÆ or LABIATÆ; subtype, SATURIDÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 968, & 972.

GEN. CHAR. *Calyx* (fig. 1.) inferior, tubular, cylindrical, with several ribs, and 5 pointed, rather unequal, direct, marginal teeth. *Corolla* (see fig. 2, *b*.) ringent; tube cylindrical, slender, incurved, dilated at the throat, which is bordered, at each side, with a narrow, reflexed lobe; *upper lip* upright, roundish, slightly cloven; *lower lip* rounded, concave, large, undivided, numerously notched. *Filaments* 4, didynamous, awl-shaped, near together, covered by the upper lip. *Anthers* incumbent. *Germen* superior, small, 4-cleft. *Style* thread-shaped, of the length and situation of the stamens. *Stigma* cloven, pointed. *Seeds* 4, nearly egg-shaped, even, in the bottom of the dry permanent calyx (see fig. 3). The lateral lobes of the lower lip of the corolla are transferred to the margin of the tube.

The nearly regular, 5-toothed *calyx;* the *corolla* with the *lower lip* numerously notched, and the throat bordered and reflexed at each side; will distinguish this from other genera in the same class and order.

One species British.

NE'PETA CATA'RIA. Common Cat-mint. Nep.

SPEC. CHAR. Leaves finely downy, heart-shaped, stalked, with tooth-like serratures. Flowers in spiked, somewhat pedunculated whorls.

Engl. Bot. t. 137.—Fl. Dan. t. 580.—Linn. Sp. Pl. p. 796.—Huds. Fl. Angl. (2nd edit.) p. 249.—Willd. Sp. Pl. v. iii. pt. 1. p. 49.—Sm. Fl. Brit. v. ii. p. 608.; Engl. Fl. v. iii. p. 70.—With. (7th ed.) v. iii. p. 695.—Lindl. Syn. p. 203.; 2nd ed. p. 202.—Hook. Brit. Fl. p. 278.—Macr. Man. Brit. Bot. p. 183.—Lightf. Fl. Scot. v. i. p. 304.—Sibth. Fl. Oxon. p. 181.—Abbot's Fl. Bedf. p. 126.—Davies' Welsh Bot. p. 56.—Purt. Midl. Fl. v. i. p. 279.—Relh. Fl. Cant. (3rd ed.) p. 232.—Hook. Fl. Scot. p. 180.—Fl. Devon. pp. 96 & 144.—Johnst. Fl. Berw. v. ii. p. 282.—Winch's Fl. of Northumb. and Durh. p. 38.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 806.—Pamplin's Indig. Plants of Battersea and Clapham, p. 10.—Walker's Fl. of Oxf. p. 161.—Perry's Pl. Varvic. Sel. p. 48.—Bab. Fl. Bath. p. 40.; Supp. p. 87.; Prim. Fl. Sarn. p. 73.‖—Irv. Lond. Fl. p. 134.—Luxf. Reig. Fl. p. 52.—Cow. Fl. Guide, p. 39.—Mack. Catal. Pl. of Ircl. p. 54; Fl. Hibern. p. 217.—*Nepeta*

Fig. 1. Calyx.—Fig. 2. A separate Flower; *a.* the Calyx; *b.* the Corolla.—Fig. 3. A matured Calyx containing the Seeds.

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* From *nepa*, a *scorpion;* it being reputed efficacious against the bite of that reptile. LINNÆUS derives it from *Nepet*, a city of Tuscany.

† See folio 31, note †. ‡ See folio 31, note ‡. § See folio 94, *a*.

‖ "Primitiæ Floræ Sarnicæ; or, An Outline of the Flora of the Channel Islands of Jersey, Guernsey, Alderney, and Serk. Containing a Catalogue of the Plants indigenous to the islands: with occasional observations upon their distinctive Characters, Affinities, and Nomenclature. By CHARLES C. BABINGTON, M. A. F. L. S. F. G. S., &c. &c. London. 1839." 12mo. pp. 132.

mollis, Salisb. Prod. p. 78.—Gray's Nat. Arr. v. ii. p. 371.—*Nepeta major vulgaris*, Ray's Syn. p. 237.—*Mentha felina, seu Cattaria*, Johnson's Gerarde, p. 682.

Localities.—On hedge-banks, by road sides, and in waste places, especially in a chalky or gravelly soil. Not uncommon in ENGLAND; more rare in SCOTLAND, and IRELAND.

Perennial.—Flowers in July and August.

Root tapering, very fibrous. *Stems* 2 or 3 feet high, upright, branched, 4-angled, leafy, clothed, like every other part of the plant, with hoary pubescence. *Leaves* opposite, on longish petioles, heart-shaped, pointed, deeply crenated, green above, paler and more downy beneath. *Flowers* numerous, in compound, stalked *whorls*, which are crowded into spikes, and mostly turned to one side of the stem. *Bracteas* scarcely longer than the pedicels. *Calyx* egg-shaped, furrowed, pubescent, a little incurved, with an oblique mouth, and spear-shaped, somewhat spreading teeth. *Corolla* about one half longer than the calyx, white, the lower lip flesh-coloured, spotted with crimson. *Stamens* rather longer than the upper lip. *Anthers* reddish. *Seeds* egg-shaped, 3-sided, blunt at both ends, crowned with a white streak, smooth, dark brown when ripe.

This plant is a native almost throughout the whole of Europe, and Middle Asia, on walls, in hedges, and waste places. It has a strong aromatic scent, between mint and pennyroyal. Cats are extremely fond of it, especially when it is withered, they will then roll themselves on it, tear it to pieces, and chew it with great pleasure. Ray observes, that plants which he transplanted from the fields into his garden were always destroyed by cats, unless he protected them with thorns till they had taken root and come into flower, but that they never meddled with plants raised from seed. Hence arose the old English proverb expressed in the doggrel lines:

> "If you set it the cats will eat it;
> But if you sow it the cats won't know it."

Mr. Miller, in his "Gardener's Dictionary," says he frequently made trial of this, and always found it true. He transplanted one of the plants from another part of the garden, within two feet of some plants which came up from seeds; the latter remained unhurt, while the former were torn to pieces and destroyed by the cats. On this account it can only be preserved in gardens by sowing the seed, for, by the handling in the process of transplanting, or in the languid state subsequent to it, the peculiar scent is exhaled, and the cats are attracted to the plant, which otherwise they are unable to discover.

An infusion of Cat-mint is deemed a specific in chlorotic cases. Two ounces of the expressed juice may be given for a dose. Sheep are said to eat it; but all other domestic animals are said to refuse it. See *Miller's Gard. Dict.* and *Johnston's Fl. Berw.*



Luzula Campestris. Field Wood-rush. 4

Mathews. Del. & Sc Pub.d by W. Baxter, Botanic Garden, Oxford 1826.

LU'ZULA*.

Linnean Class and Order. HEXA'NDRIA†, MONOGY'NIA.

Natural Order. JU'NCEÆ, *Decand.*—Lindl. Syn. p. 273.; Intr. to Nat. Syst. of Bot. p. 270.—Rich. by Maegilliv. p. 397.—Lond. Hort. Brit. p. 541.—Mack. Fl. Hibern. p. 289.—Hook. Brit. Fl. (4th edit.) p. 424.—JUNCI, Juss. Gen. Pl. p. 43.—Sm. Gram. of Bot. p. 72.—JUNCALES; sect. JUNCINÆ; type, JUNCACEÆ; Burn. Outl. of Bot. v. i. pp. 403 & 416.—TRIPETALOIDEÆ, *Linn.*

GEN. CHAR. *Calyx* (see fig. 1.) inferior, of 6 oblong, pointed, permanent, glumaceous sepals; 3 of them internal, and rather smaller than the other 3. *Corolla* none. *Filaments* (see fig. 1.) 6, hair-like, very short, attached to the base of the sepals. *Anthers* (see fig. 1.) oblong, upright, of 2 cells, busting lengthwise. *Germen* (see fig. 2.) superior, triangular, of 1 cell, with rudiments of 3 seeds only. *Style* (see fig. 2.) simple, thread-shaped, deciduous. *Stigmas* (see fig. 2.) 3, tapering, downy, as long as the style, or longer. *Capsule* (figs 3 & 4.) egg-shaped, triangular, smooth, subtended by the permanent calyx, of 1 cell, and 3 rather horny valves, without dissepiments. *Seeds* (see figs. 4, 5, & 6.) 3, at the bottom of the cell, upright, roundish, with a tumid *crest*, various in shape and position. *(Leaves flat, generally hairy.)*

The *calyx* of 6 sepals; and the 1-celled, 3-valved, 3-seeded *capsule;* will distinguish this from other genera, without a *corolla*, in the same class and order.

Seven species British.

LU'ZULA CAMPE'STRIS. Field Wood-rush. Small hairy Wood-grass.

SPEC. CHAR. Leaves flat, hairy. Panicle of 3 or 4 egg-shaped, dense, partly stalked, clusters. Capsule inversely egg-shaped, obtuse, with a small point, shorter than the calyx.

LUZULA CAMPESTRIS. Bicheno in Tr. of Linn. Soc. v. xii. p. 334. t. 9. f. 4. excl. var. β.—Gray's Nat. Arr. v. ii. p. 169.—Lindl. Syn. p. 276.—Hook. Brit. Fl. p. 166. excl. var. β.—Macr. Man. Brit. Bot. p. 242. excl. var. β.—Hook. Fl. Scot. p. 110. excl. var. β.—Grev. Fl. Edin. p. 81. excl. var. β.—Fl. Devon. pp. 63 and 129. excl. var. β.—Bab. Fl. Bath. p. 52.—Dick. Fl. Abred. p. 34.—Irv. Lond. Fl. p. 104.—Luxf. Reig. Fl. p. 31.—Cow. Fl. Guide, p. 37.—Mack. Fl. Hibern. p. 293. excl. var. β.—*Luciola campestris*, Sm. Engl. Fl. v. ii. p. 181.—With. (7th ed.) v. ii. p. 418.—Johnst. Fl. of Berw. v. i. p. 81.—Winch's Fl. of Northumb. and Durh. p. 23.—Walker's Fl. of Oxf. p. 100.—Mack. Cat. Pl. Irel. p. 34.—*Juncus campestris*, Linn. Sp. Pl. p. 468, α.—Huds. Fl. Angl. (2nd edit.) p. 152. excl. var. β.—Engl. Bot. t. 672.—Curt. Lond. Fl. t. 140.—Willd. Sp. Pl. v. ii. pt. 1. p. 221.—Sm. Fl. Brit. v. i. p. 385, α.—With. (5th edit.) v. ii. p. 436.—Lightf. Fl. Scot. v. i. p. 186.—Sibth. Fl. Oxon. p. 116, α.—Abbot's Fl. Bedf. p. 80.—Davies' Welsh Bot. p. 35.—Leers' Fl. Herborn. p. 91. t. 13. f. 5.—Purt. Midl. Fl. v. i. p. 178.—Relh. Fl. Cant. (3rd edit.) p. 145.—*Juncoides villosum, capitulis psyllii*, Scheuchz. Agr. p. 310.—*Gramen exile hirsutum*, Ray's Syn. p. 416.—Johnson's Gerarde, p. 17.

LOCALITIES.—In dry pastures, meadows, and on heaths; common.

Fig. 1. A single Flower.—Fig. 2. Germen, Style, and Stigmas.—Fig. 3. Capsule.—Fig. 4. The same, with the valves separated.—Figs. 5 & 6. A Seed.—*All*, except fig. 1., *more or less magnified.*

* The *Gramen Luzulæ* of BAUHIN. *Luzula*, SMITH tells us, is altered from *lucciola* or *luzziola*, a *glow-worm;* because the heads of flowers, wet with dew, and sparkling by moon-light, gave the elegant Italians an idea of those brilliant insects. HOOKER.

† See folio 33, note †.

Perennial.—Flowers in April and May.

Root creeping, tough, somewhat woody, with numerous blackish fibres. *Culms* solitary, from 3 or 4, to 10 inches high, upright, simple, straight, nearly round, leafy. *Leaves* strap-shaped, flat, 5-nerved, dark green, often of a reddish-brown colour at their summits, with long silky hairs on their margins, and especially at the top of the sheaths. *Spikes* or *Clusters* 3 or 4, one of which is nearly sessile, the rest on simple peduncles, either upright or drooping; each *cluster* egg-shaped, or roundish, of from 4 to 6 or 8 crowded, nearly sessile *flowers*, with several, small, membranous, fringed, shining, silvery *bracteas* at the base of each flower. *Calyx-leaves (sepals)* egg-spear-shaped, pointed, dark brown, shining, with a stout ribbed keel, and pale membranous margin. *Filaments* very short. *Capsule* 3-sided, roundish, considerably shorter than the calyx, pale brown, very blunt at the extremity, with a small point. *Seeds* kidney-shaped, olive coloured, with a white appendage, or crest, by which it is attached to the receptacle.

The marginal hairs of this, and the other species of the genus, are singularly constructed; being composed of a number of smaller fibres, which are jointed and twisted, so that by applying moisture, or breathing upon them, when dry, they untwist themselves.

Luzula congesta of De Candolle, which is found in boggy situations, is considered by many Botanists as only a variety of *L. campestris*. It differs in having a taller culm, longer leaves, and a panicle composed either of many heads clustered into one, or several little egg-shaped heads of flowers standing on long peduncles in somewhat of an umbellate form. It also flowers a month later than *L. campestris*. This is not uncommon about Oxford. It is well figured in Mr. Purton's *Midland Flora*, v. iii. p. 352. t. 9.

The *Natural Order*, Juncæ, is composed of *herbaceous plants*, with fascicled or fibrous *roots*; fistular, or flat and channelled *leaves*, with parallel veins; an often more or less capitate *inflorescence*; and generally brown or green *flowers*. Their *perianth* is inferior, 6-parted, and more or less glumaceous; their *stamens* are 6 in number, and are inserted into the base of the segments of the perianth; sometimes they are only 3, and then they are opposite the outer segments. The *ovary* is 1- or 3-celled, and 1- or many-seeded, or 1-celled and 3-seeded. The *style* is simple, with usually 3 *stigmas*, but sometimes only 1. The *fruit* is capsular, with 3 valves, bearing the dissepiment in their middle, rarely destitute of valves, and 1-seeded by abortion. *Embryo* cylindrical, at the base of a hard fleshy or cartilaginous *albumen*.—The only British genera in this order, are, 1. *Juncus*; 2. *Luzula*; and 3. *Narthesium*.

They are, for the most part, inconspicuous, rigid plants, of very little use. Some species of *Juncus* are employed for making the bottoms of chairs, &c.; and the pith for the wick of common candles; and *Juncus effusus* is cultivated in Japan for making floor-mats.



Tillæa muscosa. Mossy Tillæa. ☉

Gell Del. Pub.d by W. Barker Botanic Garden. Oxford 1840 Mathews Sc

TILLÆ'A *.

Linnean Class and Order. TRI-TETRA'NDRIA†, TRI-TETRAGY'NIA.

Natural Order. CRASSULA'CEÆ‡, *De Cand.*—Lindl. Syn. p. 63; Introd. to Nat. Syst. of Bot. p. 161.—Rich. by Macgilliv. p. 514.—Loud. Hort. Brit. p. 516.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 97.—Mack. Fl. Hibern. p. 59.—CRA'SSULÆ, Juss. Dict. des. Sc. Nat. v. xi. p. 369.—SUCCULE'NTÆ, *Linn.*—Vent. Tabl. v. iii. p. 271.—SEMPERVIVÆ, Juss. Gen. Pl. p. 307.—Sm. Gram. of Bot. p. 162.—ROSALES; sect. CRASSULINÆ; type, CRASSULACEÆ; Burn. Outl. of Bot. v. ii. pp. 614, 730, & 735.

GEN. CHAR. *Calyx* (see fig. 3.) inferior, of 3 or 4 deep, spreading, egg-shaped, succulent segments. *Corolla* (see fig. 3) of 3 or 4, egg-shaped or spear-shaped, pointed, flat, thin petals, which are rather smaller than the calyx, and alternate with its segments. *Nectaries* or *Scales* none, or very small. *Filaments* (see fig. 3.) 3 or 4, simple, awl-shaped, upright, shorter than the corolla. *Anthers* roundish, of 2 cells. *Germens* (see fig. 3.) 3 or 4, egg-shaped, superior. *Styles* terminal, very short. *Stigmas* blunt. *Capsules* (fig. 4.) 3 or 4, oblong, pointed, recurved, somewhat constricted in the middle, bursting lengthwise at their upper edge, each of 1 cell and 2 valves. *Seeds* (figs. 5 & 6.) egg-shaped, 2 in each capsule.

The 3- or 4-parted *calyx;* the *corolla* of 3 or 4 oblong, pointed, *petals;* and the 3 or 4 *capsules*, each somewhat constricted in the middle, and 2-seeded; will distinguish this from other genera in the same class and order.

One species British.

TILLÆ'A MUSCO'SA. Mossy Tillæa. Mossy Red-Shanks.

SPEC. CHAR. Stems branched and decumbent at the base. Flowers axillary, sessile, mostly 3-cleft.

Engl. Bot. t. 116.—De Cand. Pl. Grass. t. 73.—Linn. Sp. Pl. p. 186.—Rose's Elem. App. p. 448. t. 2. f. 2.—Huds. Fl. Angl. (2nd ed.) p. 73.—Willd. Sp. Pl. v. i. pt. 1. p. 721.—Sm. Fl. Brit. v. i. p. 201.; Engl. Fl. v. i. p. 242.—With. (7th edit.) v. ii. p. 209.—Gray's Nat. Arr. v. ii. p. 539.—Lindl. Syn. p. 63.—Hook. Brit. Fl. p. 78.—Maer. Man. Brit. Bot. p. 87.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 98.—Irv. Lond. Fl. p. 226.—Bab. Prim. Fl. Sarn. p. 40.—*Tillea muscosa, annua, perfoliata, flore albo,* Mich. Gen. p. 22. t. 20.—*Sempervivum omnium minimum, repens, muscosum, polygoni facei,* Boec. Mus. v. ii. p. 36. t. 22.—*Polygonum muscosum minimum,* Boec. Sic. p. 56. t. 29.

Fig. 1. Two of the Leaves.—Fig. 2. Flowers.—Fig. 3. A separate Flower, showing the calyx, the corolla, the stamens, and the pistils.—Fig. 4. Capsules.—Figs. 5 and 6. Seeds.—*All,* except figs. 2 and 5, *magnified.*

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* So named in honour of MICHAEL ANGELO TILLI, M. D. F. R. S., born 1653, Professor of Botany at Pisa; author of *Horti Pisani Catalogus,* 1723, fol. with 50 plates. It contains a few rare plants, observed by him in his voyages to Constantinople and Tunis. MARTYN.

† See folio 45, note †. ‡ See folio 364, *a.*

Localities.—On the most barren sandy heaths; rare.—*Middlesex;* On gravel-walks near London: *Hook. Brit. Fl.*—*Norfolk;* On Drayton, Cowston, and Mousehold Heaths: Sir. J. E. Smith. Yarmouth Denes, especially about the Whale's Jaw Bones: Mr. Wigg. On Dersingtoo Heath: Rev. R. Relhan. St. Faith's Bogs; the driest spots on S. Denes; and on Lound Heath, not uncommon: N. B. G. A troublesome weed on the gravel-walks at Holkham: Sir. J. E. Smith. —*Suffolk;* On Brendon Heath: Sir J. E. Smith. About Bungay, in various places: Mr. Woodward. West Stow, Icklingham, Cavenham, and Nacton Heaths: Sir T. G. Cullum. Westleton, and Dunwich Heaths; gravel-walks at Mr. Maynard's, of Hoxne, &c.: Mr. Davy. Belton, and Gorleston Heaths: Mr. Wigg. Haslewood Common; and frequent about Aldborough: Rev. G. Crabbe. Aldeby Common: Mr. F. Turner.

Annual.—Flowers from May to October.

Root small, fibrous. *Stems* numerous, at first nearly upright, but soon becoming procumbent, an inch or two in length, thread-shaped, round, smooth, jointed, leafy, generally red. *Leaves* (see fig. 1.) opposite, very succulent, reddish, smooth, oblong, blunt, combined at the base, sometimes as long, sometimes half as long as the intermediate space between one joint and another. *Flowers* generally solitary, axillary (see fig. 2.), often accompanied by a pair of smaller leaves. *Calyx* mostly in 3, egg-shaped, bristle-pointed segments. *Corolla* white, with a tinge of red, usually of 3, narrow, pointed petals, smaller than the calyx. *Stamens* and *Pistils* shorter than the corolla. *Capsules* 3, oblong, pointed. *Seeds*, 2 in each capsule. Whole plant smooth.

The flowers in this species are almost always 3-cleft, and triandrous; but they are sometimes 4-cleft in strong plants; and Gærtner says 5-cleft.

It is a native of Europe in many places, and was first determined in England by the Rev. Mr. Bryant, in 1766.

The whole plant is so small and depressed, that it only becomes remarkable by the ample reddish patches which it forms over the most dreary sands, a proof that even these apparently barren places are not always unprofitable to the Botanist. "Their loose and fluctuating surface being arrested for awhile, and destined to afford support to a tribe of plants, the constitution of which is fitted by the all-wise Creator to thrive best on the meagre nourishment they afford. Thus some of the vast African deserts are turned to account by means of *Mesembryanthemums*, *Cotyledons*, and other succulent vegetables. We have here a production nearly allied to the *Cotyledons*, which flourishes on the driest sandy heaths, where few others would live, and at a season when *Mosses* and *Lichens* are dried up;"* thus verifying the following lines of the poet:

"There's not a heath, however rude,
But hath some little flower,
To brighten up its solitude,
And scent the evening hour."

* See *Mart. Mill. Gard. Dict.*, *Sm. Engl. Fl.*, &c.



Orobranche minor. Lesser Broom-rape.

Russell Del. Pub.d by W. Baxter, Botanic Garden, Oxford 1816 Mathews Sc.

OROBA'NCHE*.

Linnean Class and Order. DIDYNA'MIA†, ANGIOSPE'RMIA‡.

Natural Order. OROBA'NCHEÆ, *Juss.*—Lindl. Syn. p. 193.; Introd. to Nat. Syst. of Bot. p. 227.—Rich. by Macgilliv. p. 433.—Loud. Hort. Brit. p. 529.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 627.—Mack. Fl. Hibern. p. 205.—Hook. Brit. Fl. (4th edit.) p. 414.—Akin to PEDICULARES, Juss. Gen. Pl. pp. 99 & 101.—Sm. Gram. of Bot. p. 96.—SYRINGALES; subord. PRIMULOSÆ; sect. MENTHINÆ; type, OROBANCHACEÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, & 960.—PERSONATÆ, *Linn.*

GEN. CHAR. *Calyx* (see fig. 1.) inferior, of 2 lateral, opposite, pointed, coloured, undivided or cloven, permanent sepals; with from 1 to 3 bracteas. *Corolla* (fig. 2.) tubular, ringent, withering; tube egg-shaped, curved, finally membranous; upper lip concave, notched, more or less dilated and spreading at the margin; lower lip reflexed, in 3, somewhat unequal, wavy lobes. *Nectary* a gland under the germen. *Filaments* (figs. 3 & 4.) 4, didynamous, from the base of the corolla, almost as long as the tube, awl-shaped, flattened and somewhat dilated downwards, variously and partially downy and glandular. *Anthers* incumbent, of 2 lobes, rounded at the top, pointed below. *Germen* egg-oblong. *Style* (see fig. 5.) terminal, cylindrical, incurved, as long as the stamens. *Stigma* large, deflexed, of 2 or 3 globular lobes. *Capsule* (see figs. 5 & 6.) egg-shaped, pointed, of 1 cell, and 2 valves, with 2 longitudinal *placentas (receptacles)* proceeding from the middle part of each valve. *Seeds* very numerous, minute, wrinkled, covering the placentas.

The *calyx* of 2 lateral, often combined and bifid segments, with from 1 to 3 bracteas; the 4- or 5-cleft, ringent *corolla;* the *gland* at the base of the *germen*; and the 1-celled, 2-valved *capsule*, with 4 parietal, longitudinal *placentas;* will distinguish this from other genera in the same class and order.

Seven species British.

OROBA'NCHE MINOR. Lesser Brome-rape.

SPEC. CHAR. Stem simple. Corolla nearly cylindrical, lower lip with curled segments, the middle one largest and lobed. Stamens fringed. Style smooth.

Engl. Bot. t. 422.—Sutton, in Tr. of Linn. Soc. v. iv. p. 179.—Sm. Fl. Brit. v. ii. p. 670.—Willd. Sp. Pl. v. iii. pt. 1. p. 350.—Sm. Engl. Fl. v. iii. p. 148.—With. (7th ed.) v. iii. p. 744.—Gray's Nat. Arr. v. ii. p. 314.—Lindl. Syn. p. 194.—Hook. Brit. Fl. p. 292.—Macr. Man. Brit. Bot. p. 175.—Purt. Midl. Fl. v. iii. p. 55.—Rev. G. E. Smith's Pl. of S. Kent, p. 36.—Fl. Devon. pp. 107 & 149.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 629.—Walker's Fl. of Oxf. p. 182.—Bab. Fl. Bath. p.

Fig. 1. Bractea, Calyx, and Corolla.—Fig. 2. Corolla.—Fig. 3. Stamens.—Fig. 4. A separate Stamen, slightly magnified.—Figs. 5 & 6. Unripe Capsules.—The figure on the right of the latter is part of a plant of *Trifolium pratense*, to which the *Orobanche* was attached.

* From *orobos*, Gr. a *laguminose* or *pea-like plant;* and *ancho*, Gr. to *strangle* (q. d. *Strangle Tare);* from its supposed power of destroying the plant on which it grows. WITHERING.

† See folio 31, note †. ‡ See folio 72, note ‡.

35; Supp. p. 85.; Prim. Fl. Sarn. p. 66.—Irv. Lond. Fl. p. 127.—Luxf. Reig. Fl. p. 56.—Mack. Cat Pl. Irel. p. 59.; Fl. Hibern. p. 206.—*Orobánche májor*, Lœfl. It. Hisp. p. 151.—*O. barbata*, Lam. Dict. v. iv. p. 621.—*O. ramosa*, β. Huds. Fl. Angl. (2nd ed.) p. 266.—*O. flore minore*, Dill. in Ray's Syn. p. *288.—Bauh. Hist. v. ii. p. 781.

Localities.—In fields and pastures, growing from the roots of *Trifolium pratense*, plentiful in some parts of Britain.—*Oxfordshire;* Woods about Ewelme; 1823: Rev. Dr. Lloyd, Lord Bishop of Oxford. Above Headington-Wick Copse: Rev. R. Walker, in *Oxf. Fl.*—*Berks;* In a clover field near Buckland; Nov. 1831: Mr. John Reddy.—*Cornwall;* About the Lizard: N. B. G.—*Devon;* Fields about Alphington and Shillingford; fields at Kenton: *Fl. Dev.* Covering a field near Matford on the Starcross road about half a mile from Alphington church: Rev. H. T. Ellacombe.—*Dorset;* Among vetches and clover in Pimpern field near Blandford: B. G.—*Gloucestersh.* St. Vincent's Rocks; Weston in Gordano: N. B. G.—*Hants;* Near Bonchurch, Isle of Wight: H. Woollcombe, Esq. Ch. Ch.—*Kent;* Found by Mr. Rand, in a field of oats two miles beyond Rochester, on the left hand going towards Horn's Place: Dill. in *Ray's Syn.* In a sand-pit at Charlton; and under the Cliffs E. of Dover: B. G. In Eastwear Bay; and upon the Sand-hills, Deal: *S. K.*—*Norfolk;* Clover-fields and pastures at Sheringham, Weyborn, Eaton, and Fiettenham: Rev. C. Sutton. Burnham; and near Norwich: N. B. G.—*Somersetsh.* Near the Sham ruin on Combe Down, and not uncommon in clover-fields. Clover-fields at Rudloe and Box; Woolley: *Fl. Bath.*—*Suffolk;* Plentifully among clover at Raydon Cottage, Orford: B. G. Bungay: N. B. G.—*Surrey;* Near Croydon, Leatherhead, Wandsworth, Coulsdon, Betchworth, and in clover-field at Brockham: N. B. G. In the greatest abundance in a large clover-field at Morden; 1833: Mr. W. Pamplin, jun.—*Sussex;* Not uncommon in clover-fields: W. Borrer, Esq.—*Wilts;* Frequent in old clover-fields: N. B. G.—*Yorksh.* Dunkirk Wood near Stemingford; near Nunwick by Ripon: B. G.—Wales. *Brecon;* Clover-fields near Crickhowel: B. G.—*Caernarvonsh.* Conway Castle; Diganwy Castle: N. B. G.—*Monmouthsh.* Near Abergavenny: N. B. G.—*Pembrokesh.* Tenby: B. G.—Ireland. Hill of Howth, South side, on steep banks near the sea; in Sir Robert Staple's woods, Queen's County; on the ruins of Muckruss Abbey, Killarney; South Isles of Arran; and plentiful in Palmerston Woods, and Leixlip, always near the roots of Ivy.

Perennial?—Flowers in July and August.

Root fibrous, usually adhering to the woody root of *Trifolium pratense* (t. 283). *Stem* thickened at the base, from 6 to 12 inches high, upright, simple, often wavy, roundish, hairy, almost the thickness of a goose-quill, flesh-coloured, or sometimes yellow, moderately scaly. *Flowers* in spikes, pale yellow with purplish veins, hairy, sometimes of a full yellow. *Bracteas* solitary, simple, spear-shaped, hairy, almost as long as the flowers. *Calyx-leaves (sepals)* sometimes simple, and sometimes divided. *Corolla* not at all tumid; upper lip rounded and crenulated; lower lip 3-cleft, with equal, rounded, crenulated lobes. *Stamens* thickly fringed in their lower part. *Germen* and *Style* smooth. *Stigma* purple.

The whole plant is generally of a purplish cast, though occasionally it is of an uniform pale yellow, always turning brown and dry in decay. All the species are parasitical, and are probably much alike in quality, viz. astringent and vulnerary. Wherever they abound they must be treated by the Agriculturist as the most destructive weeds, which will fatally impoverish any other crop.

The *Natural Order* Oroba'nchæ consists of dicotyledonous, *herbaceous*, dingy-coloured, somewhat succulent, leafless *plants*, which are glandular and scaly, and generally growing parasitically on the roots of other plants. The *calyx* is inferior, variously divided, and permanent. The *corolla* is monopetalous, irregular, permanent, and imbricated in the bud. The *stamens* are 4 in number, and didynamous. The *ovary* is superior, in a fleshy disk, 1-celled, with 2 or 4 parietal, many-seeded receptacles. The *style* is simple, with a 2-lobed *stigma*. The *capsule* is 2-valved. The *seeds* are indefinite, and very minute; with the *embryo* at the apex of a fleshy *albumen*.

The only British genera of this order are, *Orobanche*, t. 381; and *Lathræa*, t. 365.



Fraxinus excelsior. Common Ash. ħ

Mathews Del. & Sc. Publ.d by W. Baxter Botanic Garden Oxford 1810.

FRA'XINUS*.

Linnean Class and Order. DIA'NDRIA†, MONOGY'NIA.

Natural Order. OLEA'CEÆ‡, Lindl. Intr. to Nat. Syst. of Bot. p. 224.—Loud. Arb. et Frut. Brit. p. 1197.—OLEINEÆ, *Hoffmansegg* and *Link.*—Lind. Syn. p. 171.—Mack. Fl. Hib. p. 178.—OLE'INÆ, Loud. Hort. Brit. p. 524.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 43.—JASMINEÆ, Juss. Gen. Pl. p. 104.—Sm. Gr. of Bot. p. 97.—Rich. by Macgill. p. 437.—Hook. Br. Fl. (4th ed.) p. 412.—SYRINGALES; subord. PRIMULOSÆ; sect. PRIMULINÆ; type, OLEACEÆ; Burn. Outl. of Bot. pp. 900, 958, & 1020.—SEPIARIÆ, *Linn.*

GEN. CHAR. *Calyx* none, or 4-parted, or 4-toothed. *Corolla* none, or of 4 petals. *Filaments* (see figs. 1 & 2.) 2, short, between the segments, opposite. *Anthers* (see fig. 2.) large, with 4 furrows. *Germen* (see figs. 1 & 3.) superior, egg-shaped, of 2 cells, with rudiments of 2 pendulous seeds. *Style* (see fig. 1.) short. *Stigma* cloven. *Capsule* or *Samara* (figs. 4 & 5.) 2-celled, compressed, winged at top; cells 1-seeded. *Seeds* (see figs. 5 & 6.) compressed, pendulous. (Flowers sometimes without stamens.)

The obsolete, or 4-petalled, *corolla;* the compressed, mostly 2-celled, and 2-seeded *capsule;* and the absence of *stamens* in some of the flowers; will distinguish this from other genera in the same class and order.

Two species British.

FRA'XINUS EXCELSIOR. The taller Ash. Common Ash.

SPEC. CHAR. Leaves pinnated; leaflets egg-spear-shaped, pointed, serrated. Flowers without either calyx or corolla.

Engl. Bot. t. 1692.—Fl. Dan. t. 969.—Hunt. Evel. Silva, p. 150, with a plate.—Loud. Arb. et Frut. Brit. p. 1214. t. 156, *a.*; t. 156, *b.*; & t. 157.—Linn. Sp. Pl. p. 1509.—Huds. Fl. Angl. 2nd ed.) p. 416.—Willd. Sp. Pl. v. iv. pt. ii. p. 1099.—Sm. Fl. Brit. v. i. p. 13.; Engl. Fl. v. i. p. 14.—With. (7th ed. v. ii. p. 79.—Gray's Nat. Arr. v. ii. p. 392.—Lindl. Syn. p. 171.—Hook. Brit. Fl. p. 11.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 53.—Macr. Man. Brit. Bot. p. 155.—Lightf. Fl. Scot. v. ii. p. 641.—Sibth. Fl. Oxon. p. 18.—Abbot's Fl. Bedf. p. 220.—Davies' Welsh Bot. p. 3.—Purt. Midl. Fl. v. ii. p. 495.—Relh. Fl. Cant. (3rd ed.) p. 6.—Hook. Fl. Scot. p. 3.—Phill. Sylv. Fl. v. i. p. 73.—Grev. Fl. Edin. p. 2.—Kent's Syl. Sket. p. 20.—Fl. Devon. pp. 2 & 153.—Johnst. Fl. of Berw. v. i. p. 5.—Winch's Fl. of Northumb. and Durh. p. 1.—Walker's Fl. of Oxf. p. 3.—Murr. North. Fl. p. 4.—Burn. Outl. of Bot. v. ii. p. 1023. sect. 4658.—Bab. Fl. Bath. p. 30.; Prim. Fl. Sarn. p. 60.—Dick. Fl. Abred. p. 20.—Irv. Lond. Fl. p. 137.—Luxf. Reig. Fl. p. 3.—Cow. Fl. Guide, p. 31.—Mack. Catal. Pl. Irel. p. 8.; Fl. Hibern. p. 178.—*Fráxinus,* Ray's Syn. p. 469.—Johnson's Gerarde, p. 1472.

LOCALITIES.—In woods and hedges.

A Tree.—Flowers in March and April, before the leaves appear.

A tall and handsome *tree,* with a smooth, grey bark, and short, egg-shaped, blunt, coal-black, rather downy buds. *Leaves* oppo-

Fig. 1. A perfect Flower.—Fig. 2. A Flower with Stamens only.—Fig. 3. A Flower with Pistil only.—Fig. 4. A Capsule.—Fig. 5. The same opened at the base to show the seed.—Fig. 6. The umbilical Cord, *a.*; and the Seed, *b.*

* From *phrasso,* Gr. to *hedge* or *enclose;* the Ash having been formerly use for making hedges. DON.

† See folio 50. ‡ See folio 119, *a.*

site, petiolated, of from 5 to 13, nearly sessile, egg-spear-shaped, pointed, serrated, smooth *leaflets*, whose main rib is fringed beneath; their common peduncle channelled and bordered. *Flowers* in lateral *panicles* or *bunches*, small, brown, and very simple, having neither *calyx* nor *corolla*, and consisting only of a *pistil*, with (usually) one short *stamen* at each side (see fig. 1). Occasionally, on the same tree, there are, besides the perfect flowers, some with stamens only (fig. 2); and others with pistils only (fig. 3). On this account LINNÆUS placed it in his 23rd class, *Polygamia*. *Capsules* (see figs. 4 & 5.) with a flat, leaf-like termination, an inch long, and generally of 2 cells, with 1 seed in each; these are called, by our country people, ash *keys*. *Seeds* (fig. 6, *b*.) oblong, glittering with rusty-coloured meal, like an almond, but bitter and nauceous, attached to the receptacle by a long *umbilical cord (funiculus umbilicalis)*, see fig. 6, *a*.

The Ash, when well grown, is a very elegant and graceful tree; GILPIN styles it, and not inappropriately, the Venus of the Forest. It yields a valuable timber, which is hard and tough, and of excellent use to the coachmaker, wheelwright, and cartwright, for ploughs, axle-trees, fellies, harrows, and many other implements of husbandry. When curiously veined, as it sometimes is, the cabinet-makers use it, and call it green Ebony; and when our woodmen light upon it, says EVELYN, they may make what money they will of it. The wood of the Ash possesses the very singular property of being in perfection even in infancy,—a pole three inches in diameter being as valuable and durable, for any purpose to which it can be applied, as the timber of the largest tree. Of all timber it is the sweetest fuel, and will burn even whilst it is green, with very little smoke. The ashes of the branches and shoots afford very good pot-ash; the bark is used for tanning nets and calf-skins; and the leaves for adulterating tea; an infusion of them is an aperient; and a decoction of two drachms of the bark, or six of the leaves, has been used in the cure of agues. If cows eat the leaves or shoots, the butter from their milk is said to be rank; but this is doubtful, for there is no taste in ash-leaves to countenance the assertion, and the ROMANS recommended the leaves of the Ash, next to those of the Elm, for fodder. The Ash is, however, a very improper tree for hedge-rows, and the borders of arable land, as the drip of it is very unfavourable to all other productions, and it exhausts the soil much, and the roots spread widely near the surface, so that it injures the hedge, and impoverishes the crop sown near it.

It is late before it comes into leaf, and its foliation affords a just criterion to the gardener when prudently to venture green-house plants into the open air; and the first change of its leaves in the Autumn, should be considered the signal for withdrawing them. In the dark ages the Ash was associated with various gross superstitions, whose vestiges may still be traced in many parts of Britain.—Accounts of several superstitious ceremonies connected with the tree in question, may be seen in EVELYN's *Silva*; PHILLIPS' *Sylva Florifera*; KENT's *Sylvan Sketches*; LOUDON's *Arboretum et Fruticetum Britannicum*; WITHERING's *Arrangement of British Plants*, (7th ed.); DON's *General System of Gardening and Botany*; and *The Gentleman's Magazine*, V. 55. (1785) p. 798.

Several varieties of the Ash are cultivated in gardens, particularly that with pendulous branches, called the *Weeping Ash*.

Fraxinus heterophylla of SMITH's *English Flora*, is considered by many as only a variety of the present species; a solitary tree of it is growing near the top of the horse-walk, Christ Church Meadow, Oxford.

Sphæ'ria concéntrica, Bolt.; *S. pruinósa*, Fries; *S. córtices*, Sow.; and *Hysterium Fráxini*, Pers.; are parasitic on decaying and dead trunks and branches of the Ash, about Oxford.



Vaccinium vitis Idaea. Red Whortle-berry. ♄

Russell. Del. Pub.d by W. Baxter, Botanic Garden, Oxford. 1820. Mathews Sc.

VACCI'NIUM*.

Linnean Class and Order. Octa'ndria†, Monogy'nia.

Natural Order. Vaccinie'æ, *Dec.*—Lindl. Syn. p. 134; Intr. to Nat. Syst. of Bot. p. 184.—Loud. Hort. Brit. p. 523.—Mack. Fl. Hibern. p. 135.—Hook. Brit. Fl. (4th edit.) p. 411.—Ericæ, Juss. Gen. Pl. p. 159.—Sm. Gram. of Bot. p. 115.—Erica'ceæ; tribe, Vaccinie'æ, Don's Gen. Syst. of Gard. and Bot. v. iii. pp. 785 and 789.—Loud. Arb. et Frutic. Brit. pp. 1076 & 1078.—Ericineæ; sect. Vaccinie'æ, Rich. by Macgilliv. pp. 151 & 152.—Syringales; subord. Ericosæ; sect. Ericineæ; type, Vaccinia'ceæ; Burn. Outl. of Bot. v. ii. pp. 900, 937, & 944.—Bicornes, *Linn.*

Gen. Char. *Calyx* (see fig. 1.) superior, small, of 1 sepal, entire, or 4- or 5-toothed, permanent. *Corolla* (figs. 3 & 4.) of 1 petal, bell-shaped, or pitcher-shaped, 4- or 5-cleft, segments reflexed. *Filaments* (see fig. 4.) 8, sometimes 10, awl-shaped, flattened, inserted into the receptacle, equal. *Anthers* (see fig. 5.) terminal, upright, oblong, with 2 points, opening by a terminal pore in each. *Germen* inferior, roundish. *Style* (see figs. 1 & 2.) simple, cylindrical, upright, longer than the stamens. *Stigma* blunt. *Berry* (see figs. 6, 7, & 8.) globular, with a central depression, 4- or 5-celled, many-seeded. *Seeds* (fig. 9.) small, angular.

The entire, or 4- or 5-toothed, superior *calyx;* the monopetalous, bell-shaped, 4- or 5-cleft *corolla;* the 2-pointed *anthers*, opening at the tip; and the globose, 4- or 5-celled, many-seeded *berry;* will distinguish this from other genera in the same class and order.

Three species British.

VACCI'NIUM VITIS IDÆ'A. Cow-berry. Red Whortle-berry. Red Bilberry.

Spec. Char. Clusters terminal, drooping, with egg-shaped, concave bracteas, longer than the flower-stalks. Leaves evergreen, inversely egg-shaped, dotted beneath, their margins slightly revolute, minutely toothed. Corolla bell-shaped.

Engl. Bot. t. 598.—Fl. Dan. t. 40.—Lodd. Bot. Cab. t. 1023.—Linn. Sp. Pl. p. 500.—Huds. Fl. Angl. (2nd ed.) p. 164.—Willd. Sp. Pl. v. ii. pt. 1. p. 354.—Sm. Fl. Brit. v. i. p. 415.; Engl. Fl. v. ii. p. 220.—With. (7th ed.) v. ii. p. 479.—Lindl. Syn. p. 134.—Hook. Brit. Fl. p. 178.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 855.—Loud. Arb. et Frutic. Brit. p. 1164. fig. 987.—Macr. Man. Brit. Bot. p. 148.—Lightf. Fl. Scot. v. i. p. 202.—Purt. Midl. Fl. v. ii. p. 731.—Hook. Fl. Scot. p. 118.—Grev. Fl. Edin. p. 87.—Johnst. Fl. of Berw. v. i. p. 88.—Winch's Fl. of Northumb. and Durh. p. 25.—Walker's Fl. of Oxf. p. 109.—Perry's Pl. Varvic. Sel. p. 34.—Dick. Fl. Abred. p. 35.—Irv. Lond. Fl. p. 243.—Mack. Cat. Pl. Irel. p. 37; Fl. Hibern. p. 136.—*Vaccinia rubra*, Johnson's Gerarde, p. 1415.—*Vitis-Idæa punctifolia*, Gray's Nat. Arr. v. ii. p. 406.—*Vitis Idæa sempervirens fructu rubro*, Ray's Syn. p. 457.

Localities.—On dry, barren, stony, turfy heaths, and in mountainous woods. —*Cheshire;* Common on the moors. In old slate-quarries on Stayley Moors, where it bears fruit in Summer and at Christmas. Mole-Cop, Congleton Edge, and Cloud, three hills near Congleton.—*Cumberland;* On almost all the hills,

Fig. 1. Calyx and Pistil.—Fig. 2. Calyx and Bracteas.—Fig. 3. Corolla.—Fig. 4. The same, opened vertically, to show the 8 Stamens.—Fig. 5. A Stamen, magnified. —Figs. 6 & 7. Berries.—Fig. 8. A transverse section of a Berry.—Fig. 9. A Seed.

* Etymology of the word uncertain. Thornton says it is from *bacca*, L. *a berry*, the *b* being changed into *v*.

† See folio 42, note †.

but finest on those W. of Derwentwater, as Grassmoor and Grisedale Pike.—*Derbysh.* High moors beyond Mam Tor and Win Hill, from Castleton; East More; High Moor, near Hayfield; Cromford Moor; Combe's Moor; and Holme Moss.—*Durham;* Near Eglestone; on turfy heaths at Butsfield, Stanhope in Weardale, and in Teesdale Forest; in woods at Witton-le-Wear, and Howns near Medomsley; on the heath at the source of a Roman aqueduct W. of Woodland, near Butsfield; and on rocks at Cauldron Snout.—*Gloucestersh.* Leigh Wood.—*Herefordsh.* North parts.—*Kent;* Golden Wood, Feversham, towards the N. end, abundantly.—*Lancash.* Clangha Hill, near Lancaster.—*Northumberland;* On Cheviot and Hedgehope; also in Allendale; in the wood at Roadley, and on the moors near Wallington; in East Common Wood, and on the banks of West Dipton, near Hexham; on rocks at Long Crag, near Watling Street, by the road to Throckrington from Gunnerton; also on the moor edge near Dilligate Hall, on the hill at Hepburn near Chillingham.—*Notts;* In bogs on the Rainworth; particularly abundant near Fountain Dale; Papplewick Forest.—*Shropsh.* Summit of the Stiperstones, plentifully.—*Somersetsh.* Leigh Woods near Bristol, and in that neighbourhood.—*Staffordsh.* In the mountainous parts; Carrock Heath, in a dry gravel. Plentiful in Molecop.—*Warwicksh.* Boggy heaths between Middleton and Sutton; Sutton Wood near Rounton Well, (Mr. W. Ick).—*Westmoreland;* Winfield Forest.—*Worcestersh.* Lower Bromsgrove Lickey.—*Yorksh.* In several parts of the county.—Not uncommon in WALES.—Plentiful in SCOTLAND; and in some parts of IRELAND. For authorities, see *New Botanist's Guide.*

A Shrub.—Flowers in April and May.

Root creeping, woody. *Stems* mostly upright, 3 to 5 inches high, flexuose, angular; with a few downy branches towards the top. *Leaves* alternate, on short petioles, rigid, evergreen, inversely egg-shaped, veiny, their margins slightly revolute, and minutely toothed towards the summit; of a dark shining green above; pale, and dotted beneath. *Flowers* in drooping, terminal clusters, each with a pale, egg-shaped, concave, fringed, deciduous *bractea* at the base of its partial stalk (see fig. 2). *Calyx* (fig. 1.) deeply 4-cleft, fringed. *Corolla* pale pink or white, bell-shaped, with 4 segments, octandrous. *Anthers* (see fig. 5.) double-pointed, without spurs, *Berries* globose, blood-red, acid, astringent, and bitter.

This little shrub is a native of dry, barren, stony woods and heaths in most of the northern countries of Europe; also of America, on rocks on the sea-coast, from Canada to New England, but the American plant is larger than ours. It is found also in the whole of Russia, and in Siberia, more especially in pine woods. In Sweden and Norway, it is said to be used in gardens for edgings, as box is in Central Europe. The berries are eaten by the Laplanders and other country people, but they are acid, and not very grateful. LINNÆUS says that they are sent in large quantities from West Bothnia to Stockholm for pickling. They are also made into tarts, but are less palatable than either the Cranberry or Bilberry. Immersion in water for some hours is said to remove their disagreeable bitterness. An excellent rob, or jelly, is made from them, which is eaten in Sweden, with all kinds of roast meat, and considered preferable to red currant jelly as a sauce for vension. In Wales it is used with roast mutton. It is also much recommended for colds, sore throats, and all irritations of the mouth or fauces.

The plant may be cultivated in a moist shady border of bog-earth. Goats eat it; but cows, sheep, and horses refuse it.—See LOUD. *Arb. et Frutic. Brit.;* DON's *Mill. Dict.* &c.—*Hystérium melaleúcum,* FR. Hook. Brit. Fl. v. ii. pt. ii. p. 295, is often parasitic on its dead leaves.

For the plant from which the drawing for the accompanying plate was made, I am indebted to the kindness of Mr. O. JEWITT, of Headington, near Oxford, who obtained it from one of its localities in Derbyshire. The flowers were perfectly white.



Arenaria verna Vernal sandwort 4

Mathews Del & Sc. Pub^d by W. Baxter Botanic Garden Oxford 1840

ARENA'RIA *.

Linnean Class and Order. DECA'NDRIA †, TRIGY'NIA.

Natural Order. CARYOPHY'LLEÆ ‡, *Linn.*—Juss. Gen. Pl. p. 299.—Sm. Gram. of Bot. p. 159.—Lindl. Syn. p. 43.; Introd. to Nat. Syst. of Bot. p. 156.—Rich. by Macgilliv. p. 507.—Loud. Hort. Brit. p. 501.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 379.—Mack. Fl. Hib. p. 40.—Hook. Brit. Fl. (4th ed.) p. 400.—ROSALES; subord. RHŒADOSÆ; sect. DIANTHINÆ; type, DIANTHACEÆ; Burn. Outl. of Bot. pp. 614, 784, 805, & 807.

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 5, oblong, pointed, spreading, mostly ribbed, permanent sepals. *Corolla* (fig. 2.) of 5, egg-spear-shaped, undivided petals (see fig. 3). *Nectaries* (see fig. 4.) 5 or 10 glands at the base of the stamens. *Filaments* (see fig. 4.) 10, awl-shaped. *Anthers* roundish. *Germen* (see fig. 5.) superior, egg-shaped. *Styles* (see fig. 5.) 3, short, spreading. *Stigmas* downy. *Capsule* (see fig. 6.) egg-shaped, covered by the permanent calyx and withered corolla, of 1 cell, and 3, rarely 6, valves. *Seeds* (see figs. 6 & 7.) numerous, kidney-shaped, roughish, attached to a short central column.

The *corolla* of 5 undivided, spreading petals; and the 1-celled, many-seeded *capsule*, opening by 3 or 6 teeth at the apex; will distinguish this from other genera in the same class and order.

Eleven species British. See *Hook. Brit. Fl.* 4th edit.

ARENA'RIA VERNA. Vernal Sandwort. Mountain Chickweed.

SPEC. CHAR. Stems numerous, panicled above. Leaves awl-shaped, bluntish, 3-nerved when dry. Petals inversely egg-shaped, longer than the remotely 3-nerved calyx.

Engl. Bot. t. 512.—Jacq. Fl. Austr. vol. v. p. 2. t. 404.—Linn. Mant. p. 72.—Huds. Fl. Angl. (2nd ed.) p. 191.—Willd. Sp. Pl. v. ii. pt. 1. p. 724.—Sm. Fl. Brit. v. ii. p. 482.; Engl. Fl. v. ii. p. 309.—With. (7th ed.) v. ii. p. 552.—Gray's Nat. Arr. v. ii. p. 654.—Lindl. Syn. p. 50.—Hook. Brit. Fl. p. 206.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 434.—Macr. Man. Brit. Bot. p. 33.—Lightf. Fl. Scot. v. i. p. 231.—Purt. Midl. Fl. v. ii. p. 732.—Hook. Fl. Scot. p. 138.—Grev. Fl. Edin. p. 99.—Johnst. Fl. Berw. v. i. p. 98.—Winch's Fl. of Northumb. and Durh. p. 29.—Irv. Lond. Fl. p. 248.—Mack. Fl. Hibern. p. 47.—*Arenaria saxatilis*, Huds. Fl. Angl. (1st edit.) p. 168.—With. (1st edit.) v. i. p. 257.—Penn. Tour in Wales, t. 2. f. 1.—*A. juniperina*, With. (5th edit.) p. 521.—*A. laricifolia*, Lightf. Fl. Scot. v. i. p. 232.—With. (5th edit.) p. 521.—*Alsine pusilla pulchro flore folio tenuissimo nostras*, Ray's Syn. p. 350.

LOCALITIES.—In rocky and mountainous pastures; rare.—*Cheshire;* High pastures at Stayley: Mr. BRADRUBY.—*Cornwall;* About Kynance Cove: Mr. H. C. WATSON, in N. B. G.—*Cumberland;* Hallen Hag, Swarth Fell, and Place

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Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. A Petal.—Fig. 4. Stamens and Pistils.—Fig. 5. Germen and Styles.—Fig. 6. Capsule.—Fig. 7. A Seed.—Fig. 8. Section of the Stem with 2 of the Leaves.—*All*, except fig. 2, *more or less magnified.*

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* From *arenia*, L. *sand;* in allusion to the arid, sandy places, in which most of the species grow.

† See folio 37, note †. ‡ See folio 152, *a*.

Fell, Ullswater; Alston Moor, and Cross Fell: N. B. G.—*Derbysh.* On lead-mine hillocks; on Masson, (a high mountain near Matlock,) plentiful: Mr. O. Jewitt. See *Matlock Companion*. pp. 26 & 27. Between Bakewell and Castleton: Mr. J. Woods, jun. Middleton Dale; and Crich: Mr. Coke. Near Matlock Bath; on Peveril Castle, and neighbouring lime-rocks: Mr. H. C. Watson, in N. B. G.—*Durham;* Upon the Wolds near Cauldron Snout, Teesdale; on the Moors in Weardale; and on Cronkley Fell, Teesdale: N. J. Winch, Esq. *Herefordsh.* In the northern parts of the county: Duncumb.—*Northumberland;* On old mine heaps in Allendale: N. J. Winch, Esq. On the banks of Tyne, near Crow-hall: Mr. J. Thompson. On Spindlestone Craigs: Mr. R. Embleton, in *Fl. of Berw.* p. 294.—*Somersetsh.* Mendip Hills: Maton.—*Westmoreland;* About Kendal: Hudson. On some craggy ground about halfway between Bikdale and Dufson (Dufton?): N. B. G.—*Yorksh.* Mountains about Settle; and upon Hinklehaugh: Teesdale. Near Pately Bridge by Ripon; and in Wensley Dale, common: Mr. Brunton. Near Scarborough: Travis. In great abundance all the way from Richmond through Wensleydale to the mountains; on the top of Pennighant; and at 2000 feet on Cronkley Fell.—WALES. *Brecknocksh.* Cader Arthur, 3 miles from Brecon: Evens, in B. G.—*Caernarvonsh.* Rocks on Snowdon: Mr. H. C. Watson, in N. B. G. Near Llanberis; Mr. Griffith. Rocks near Twll dû; and on Clogwyn y Garnedd: Bingley. Cwm Idwell; Llandudno; and Little Ormeshead: *Mag. Nat. Hist.*—*Denbighsh.* Mine hillocks, not common: Bowman, in N. B. G.—*Flintsh.* Between Holywell and St Asaph, on the rubbish of mines: Mr. Griffith. Hilly parts of Whiteford parish: Pennant. Abundant on mine hillocks W. of Holywell: J. E. Bowman, in N. B. G.—SCOTLAND. *Berwicksh.* On St. Abb's-head, plentiful; and in a deep glen about a mile south of Fastcastle: Rev. A. Baird. Spindlestone Craigs: *Fl. Berw.*—*Edinburghsh.* Plentiful on Salisbury Craigs and Arthur's Seat, and occasionally on the Pentland Hills: Mr. H. C. Watson, in N. B. G. King's Park; and Blackford Hill: Mr. Maughan.—*Lanarksh.* Dry gravelly places on the north bank of the Canal between Caldar and Kirkintilloch: N. B. G—*Perthsh.* Mael Dun-crosk, a very small distance from Craig Calliach; where, at nearly the same elevation, *A. rubella* occurs, but not *A. verna*: *Bot. Misc.*—IRELAND. *County of Derry;* Trap rocks on Magilligon.—*County of Clare;* Between Lunenagh Castle and Kilferna.—*Island of Arran;* Mack Fl. Hibern.

Perennial.—Flowers in May and June.

Root somewhat woody, branching, and fibrous. *Stems* very numerous, tufted, ascending, from 3 to 5 inches high, spreading, round, or somewhat angular, leafy, slightly pubescent and vicid; bearing terminal, few-flowered *panicles*. *Leaves* numerous, short, smooth, 3-ribbed beneath, with blunt points, connate at the base; lower ones crowded, often incurved; upper ones distinct. *Bracteas* small and short, 3-ribbed. *Flower-stalks* often clothed with spreading, glandular hairs. *Calyx* hairy, of 5, egg-shaped, pointed sepals, membranous at the margins, each with 3, equal, distant ribs. *Corolla* white; petals inversely egg-shaped, longer than the calyx. *Capsule* cylindrical, of 3 valves, longer than the calyx. *Seeds* compressed, rough.

Sir J. E. Smith observes, that some rather larger or smaller specimens, not to be called varieties, have been occasionally mistaken for *A. saxatilis*, *juniperina*, or *laricifolia*, of Linnæus; all very different from this, and from each other, and hitherto not found wild in Britain.

It has been remarked by the Rev. Pike Jones, in his "Botanical Tour," pp. 20 and 21, that this plant has the peculiar power of resisting the poisonous effects of the metallic oxides which usually pervade the refuse heaps thrown out from lead-mines, and is found to flourish in such situations, usually destructive to vegetable life. See *Sm. Engl. Fl.* and *With. Bot. Arr.* 7th edition.



Scrophularia nodosa. Knotted Figwort. 2.

Ryfell Del. Pub.d by W.Baxter Botanic Garden Oxford 1810 Mathews Sc.

SCROPHULA'RIA*.

Linnean Class and Order. DIDYNA'MIA†, ANGIOSPE'RMIA‡.
Natural Order. SCROPHULARI'NEÆ§, *Dr. R. Brown.*—Lindl. Syn. p. 187.; Introd. to Nat. Syst. of Bot. p. 228.—Mack. Fl. Hib. p. 198.—Hook. Brit. Fl. (4th edit.) p. 414.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 500.—SCROPHULA'RINÆ; Rich. by Magilliv. p. 434.—Sm. Engl. Fl. v. iii. p. 115.—Loud. Hort. Brit. p. 528.—SCROPHULA'RIÆ; Juss. Gen. Pl. p. 117.—Sm. Gram. of Bot. p. 100.—SYRINGALES; subord. PRIMULOSÆ; sect. MENTHINÆ; type, SCROPHULARIACEÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, and 978.—PERSONATÆ, *Linn.*

GEN. CHAR. *Calyx* (fig. 1.) inferior, with 5 rounded, nearly equal, marginal segments, much shorter than the corolla. *Corolla* (fig. 2.) globose; its limb contracted, with 2 short *lips;* upper lip with 2 lobes, and frequently a small *scale* or abortive stamen within it (see fig. 6.); lower lip shorter, 3-lobed. *Filaments* (see fig. 3.) 4, didynamous, declined towards the upper lip, strap-shaped, shorter than the corolla. *Anthers* terminal, blunt, of 2 valves. *Germen* (see fig. 5.) egg-shaped. *Style* (see fig. 5.) the length of the stamens. *Stigma* simple. *Capsule* (fig. 7.) egg-shaped, or globular, pointed, of 2 cells and 2 valves; the margins of the valves turned inwards. *Seeds* (fig. 8.) numerous, small, angular, attached to a globose central *receptacle.*

The 5-lobed, or 5-cleft, inferior *calyx;* the nearly globose *corolla*, with an inflated tube, and a short, contracted, irregular, 5-lobed limb; and the *capsule* of 2 cells, and 2 valves, with inflexed margins; will distinguish this from other genera in the same class and order.

Four species British.

SCROPHULA'RIA NODO'SA. Knotty-rooted Figwort. Great Figwort. Kernelwort. Brownwort.

SPEC. CHAR. Leaves oblong-heart-shaped, acute, doubly serrated, smooth, 3-ribbed at the base. Stem with 4 acute angles. Root tuberous.

Engl. Bot. t. 1544.—Fl. Dan. t. 1167.—Linn. Sp. Pl. p. 863.—Huds. Fl. Angl. (2nd ed.) p. 274.—Willd. Sp. Pl. v. iii. pt. 1. p. 270.—Sm. Fl. Brit. v. ii. p. 663.; Engl. Fl. v. iii. p. 137.—With. (7th ed.) v. iii. p. 738.—Lindl. Syn. p. 193.—Hook. Brit. Fl. p. 288.—Macr. Man. Brit. Bot. p. 168.—Don's Gen. Syst. of Gard. & Bot. v. iv. p. 508.—Lightf. Fl. Scot. v. i. p. 329.—Sibth. Fl. Oxon. p. 196.—Abbot's Fl. Bedf. p. 138.—Davies' Welsh Bot. p. 61.—Purt. Midl. Fl. v. i. p. 292.—Relh. Fl. Cant. (3rd edit.) p. 255.—Hook. Fl. Scot. p. 189.—Grev. Fl. Edin. p. 137.—Fl. Devon. pp. 105 & 148.—Johnst. Fl. of Berwick, v. i. p. 138.—Winch's Fl. of Northumbl. and Durh. p. 42.—Walker's Fl. of Oxf. p. 179.—Lindl. Fl. Med. p. 503.—Bab. Fl. Bath. p. 35.; Prim. Fl. Sarn. p. 69.—Dick. Fl. Abred. p. 45.—Irv. Lond. Fl. p. 130.—Luxf. Reig. Fl. p. 55.—Mack. Catal. Pl. of Irel. p. 58.; Fl. Hibern. p. 205.—*Scrophulária májor*, Ray's Syn. p. *283.—Johnson's Gerarde, p. 716.—*Scrofulária nodósa*, Gray's Nat. Arr. v. ii. p. 320.

LOCALITIES.—In woods and hedges; frequent.

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. Corolla opened, to show the Stamens and Pistil.—Fig. 4. A single Stamen.—Fig. 5. Calyx, Germen, Style, and Stigma.—Fig. 6. Upper Lip of the Corolla, shewing the Scale, or Sterile Stamen.—Fig. 7. A Capsule.—Fig. 8. A Seed.—Figs. 3 & 4, *a little magnified.*

* So named from its supposed use in the cure of Scrofula. DON.
† See folio 31, note †. ‡ See folio 72, note ‡. § See folio 50, *a*.

Perennial.—Flowers in June and July.

Root large, whitish, tuberous, beset with roundish knobs, which are said to disappear as the plant attains maturity. *Stem* 2 or 3 feet high, upright, nearly simple, leafy, sharply 4-angled, smooth and glossy, often of a reddish-brown colour, the angles sometimes edged with a membranous line, but not winged. *Leaves* opposite, on shortish petioles, imperfectly heart-shaped, pointed, sharply and unequally serrated, the base cut away, as it were, to the two small lateral ribs; brownish green above, paler beneath. *Flowers* small, a little drooping, in a compound, terminal panicle, accompanied by spear-shaped, taper-pointed *bracteas*. *Calyx* small, with 5 blunt teeth, which are membranous at the margin. *Corolla* of a dull green, roundish-egg-shaped; the two *upper segments* of a dusky purple, with a small, kidney-shaped *scale*, or sterile stamen, at their base within; the two *lateral segments* expanding; the *lower one* rolled back. *Capsule* egg-shaped.

This species has the name *Figwort*, and formerly *Kernelwort*, from its knotted roots, and *Brownwort* from the brown tinge of its leaves. In medicine the plant is hardly known in modern practice, but the rank smell, like Elder, and bitter taste of the leaves, seem to indicate active properties. The leaves and roots are said to be purgative and emetic. GERARDE says, "divers do rashly teach, that if it be hanged about the necke, or else carried about one, it keepeth a man in health."—Swine that have the scab are cured by washing them with a decoction of the leaves. Wasps resort greatly to the flowers in search of the honey-like liquor at the base of the tube of the corolla. Goats eat the plant; but cows, horses, sheep, and swine, refuse it.

RAY informs us, in the 2nd edition of his *Synopsis*, p. 161, that a variety of *S. nodosa*, with the stem, leaves, and flowers all green, was found by BOBART near Cumnor, Berks, previous to 1696; and remarks, "Common Figwort is called Brownwort from its remarkable brown colour. This hath nothing of Brownness in it." This green variety was found in the same locality in 1830, by HIS GRACE the present ARCHBISHOP of DUBLIN, by whom it was introduced into the Oxford Botanic Garden, where it is still growing, and remains unchanged by cultivation.

Professor BURNETT, in his very useful work, entitled *Outlines of Botany*, p. 981, says, the *Scrophulariæ* received their generic name from the resemblance the tumid roots of some of the species bear to scrofulous swellings, and to which they were applied as poultices, the doctrine of signatures leading to the belief that nature thus indicated their virtues and the purposes to which they should be applied. Sir J. E. SMITH, however, seems to have been of a different opinion, for he says, (*Engl. Fl.* v. iii. p. 138.) *Scrophularia nodosa* having been taken for the *Galeopsis* of DIOSCORIDES, which is really *S. peregrina*, and though celebrated for its use in scrofulous disorders, has no tuberous root, it may not be correct to suppose this sort of root first recommended our plant to medical use, or was the origin of the generic name. If, however, such were the case, it would not be without example in the history of medicine.



Ulmus montana. Wych Elm.

Mathews. Del. & Sc.

Pub^d by W. Baxter. Botanic Garden. Oxford 1840.

U'LMUS*.

Linnean Class and Order. PENTA'NDRIA†, DIGY'NIA.

Natural Order. ULMA'CEÆ, *Mirbel.*—Lindl. Syn. p. 225.; Intr. to Nat. Syst. of Bot. p. 94.—Loud. Hort. Brit. p. 534.—Mack. Fl. Hibern. p. 240.—Hook. Brit. Fl. (4th edit.) p. 419.—URTICEÆ; tribe, CELTIDEÆ; Rich. by Macgilliv. pp. 540 & 541.—AMENTA'CEÆ, sect. 1. Juss. Gen. Pl. pp. 407 & 408.—Sm. Gr. of Bot. pp. 189 & 190.—QUERNEALES; sect. ULMINÆ; type, ULMACEÆ; Burn. Outl. of Bot. pp. 523, 538, & 539.—SCABRIDÆ of *Linnæus.*

GEN. CHAR. *Calyx* (see fig. 1.) inferior, of 1 sepal, turbinate, wrinkled, 4- or 5-cleft, permanent, coloured on the inner side. *Corolla* none. *Filaments* (see figs. 1 & 2.) as many as the segments of the calyx, and twice as long, inserted into the tube opposite to each segment. *Anthers* upright, short, with 4 furrows, and 2 cells, bursting lengthwise externally. *Germen* (fig. 3.) superior, elliptic-oblong, compressed, cloven at the summit. *Styles* (see fig. 3.) 2, terminal, spreading, shorter than the calyx, finally bent inwards. *Stigmas* along the inner edge of the style, downy, permanent. *Capsule* (fig. 4.) compressed, with a membranous wing all round, (hence a *Samara*), orbicular or somewhat oblong, with a notch at the extremity, of 1 cell, not bursting. *Seed* (fig. 5.) solitary, central, roundish, slightly compressed.

The inferior, monosepalous, 4- or 5-cleft, permanent *calyx;* and the compressed, 1-celled, 1-seeded *capsule,* winged all round; will distinguish this from other genera, without a corolla, in the same class and order.

Seven species British.

U'LMUS MONTA'NA. Mountain Elm. Scotch Elm. Wych Elm. Broad-leaved Elm. Wych Hazel.

SPEC. CHAR. Leaves inversely egg-shaped, pointed, doubly and coarsely serrated, wedge-shaped and nearly equal at the base, always exceedingly rough above, evenly downy beneath. Branches not corky, ash-coloured, smooth. Fruit somewhat orbicular, slightly cloven, naked.

Engl. Bot. t. 1887.—Bauh. Pin. p. 427.—With. 2nd. edit. v. i. p. 259; 7th edit. v. ii. p. 356.—Sm. Fl. Brit. v. i. p. 282. excl. var. β.; Engl. Fl. v. ii. p. 22.—Gray's Nat. Arr. v. ii. p. 250.—Lindl. Syn. p. 227.—Hook. Brit. Fl. p. 142.—Loud. Arb. et Frutic. Brit. p. 1398.—Davies' Welsh Bot. p. 26.—Purt. Midl. Fl. v. i. p. 137.—Relh. Fl. Cant. (3rd edit.) p. 108. excl. var. β.—Hook. Fl. Scot. p. 85.—Grev. Fl. Edin. p. 60.—Fl. Devon. pp. 46 & 136.—Johnst. Fl. Berw. v. i. p. 66.—Winch's Fl. of Northumbl. and Durh. p. 17.—Walker's Fl. of Oxf. p. 72.—Perry's Pl. Varv. Select. p. 24.—Bab. Fl. Bath. suppl. p. 91.; Prim. Fl. Sarn. p. 90.—Irv. Lond. Fl. p. 118.—Mack. Catal. Pl. of Irel. p. 26.; Fl. Hibern. p. 241.—*Ulmus glabra,* Huds. Fl. Angl. (1st ed.) p. 95, fide Smith.—*U. effusa,* Sibth. Fl. Oxon. p. 87.—Abbot's Fl. Bedf. p. 55.—*U. nuda,* Ehrh. Arb. p. 62.—*U. campestris,* Willd. Sp. Pl. v. i. pt. II. p. 1324.—Fl. Dan. t. 632.—Huds. Fl. Angl. (2nd ed.) p. 109. var. γ.—

Fig. 1. A Flower.—Fig. 2. The same opened to show the situation of the Stamens.—Fig. 3. Germen and Pistils.—Fig. 4. A Capsule.—Fig. 5. A Seed.—Fig. 6. The same, with the Testa removed.

* According to TURIS, from the Anglo-Saxon *Elm. Ulm* is, however, still the German word for this tree. HOOKER.

† See folio 48, note †.

Lightf. Fl. Scot. v. i. p. 1094, variety.—*U. scabra*, Hunt. Evel. Silva, p. 119, note.—*Ulmus folio latissimo scabro*, Goodyer in Johnson's Gerarde, p. 1481.—Ray's Syn. p. 469.

Localities.—In woods and hedges; frequent.

Tree.—Flowers in March and April.

A large tree, growing to the height of from 50 to 100 feet, with long, widely spreading, somewhat drooping branches. *Bark* even, not corky; downy in a young state. *Leaves* large, 3 or 4 inches long, and 2 or 3 broad, doubly and coarsely serrated, somewhat inversely egg-shaped, with a long copiously serrated point; rough on the upper surface, with minute, callous, bristly tubercles; the under surface downy and paler, with straight, parallel, transverse ribs, which are copiously hairy at their origins and subdivisions. *Flowers* rather larger and paler, and in looser tufts than most of the species, each in 5, 6, or 7, oblong, pointed segments, with as many broad, rather heart-shaped, dark-purple *anthers*. *Capsule (samara)* broadly elliptical, almost orbicular, with a shallow notch at the end, not extending half way to the *seed*.

The *Wych Elm* is a native of many other parts of Europe as well as of Britain; and, when full grown, is an elegant and noble tree. Its wood is tough, and valuable for many purposes. Mr. Ashworth (in *Gard. Mag.* v. xii. p. 409.) states it to be nearly equal in value to that of the Ash. "It is good," he says, "for the naves, poles, and shafts of gigs and other carriages; and from its not splintering, as the Oak and Ash, in time of battle, for the swingle-trees of great-gun carriages. It is also used for dyers' and printers' rollers, the wood by constant use wearing smooth. Cartwrights employ it for shafts, naves, beds, rails, and standards for wheelbarrows, and the handles of spades, forks, and other agricultural implements." Gerarde says, that "when long bows were in use, there were very many made of the wood of this tree." The bark from the young boughs is stripped off in long ribands, and often used, especially in Wales, for securing thatch, and for various bindings and tyings, to which purpose its flexible and tough nature renders it well adapted. Lightfoot says, the Highlanders make good ropes of it. In some parts of the country this tree is considered a preservative against witches; and Mr. Loudon informs us, in his valuable work above referred to, that in some of the midland counties, even to the present day, a little cavity is made in the churn, to receive a small portion of witch-hazel, without which the dairymaids imagine that they would not be able to get the butter to come. This species of Elm often attains a very large size. Two magnificent specimens of it may be seen in the Grove at Magdalen College, Oxford; the largest of these is more than 100 feet high, its trunk, 2 feet above the ground, measures 28 feet in girt, and its branches extend over a space of ground 120 feet in diameter. Another very fine tree of this kind is growing at Fyfield, about six miles from Oxford.—*Septoria Ulmi*, Hook. Brit. Fl. v. ii. pt. ii. p. 356, is not uncommon on the living leaves of this species near Oxford.

Ten varieties of the Wych Elm are described by Mr. Loudon, in his very excellent work, the *Arboretum et Fruticetum Britannicum*, and four of them figured. Some of these are worth cultivating in a useful, and others in an ornamental point of view. See pp. 1398 & 1399; and Plates 187 a., 188, and 188 a.

The *Natural Order* Ulmaceæ, of which the present genus is the only British example, consists of apetalous dicotyledonous *trees* or *shrubs*, with rough, alternate, simple, deciduous *leaves*, and *stipulæ*. The *flowers* are perfect or polygamous. The *calyx* is inferior, bell-shaped, and divided. The *stamens* are definite. The *ovary* is superior, and 2-celled; with solitary, pendulous *ovules;* and 2 distinct *stigmas*. The *fruit* is 1- or 2-celled, indehiscent, membranous or drupaceous; and the *seed* solitary, and pendulous, with very little or no *albumen*.



Peristylus albidus White Peristylus. 4

Mathews Del. & Sc. Pub.d 2nd Nov.r Baxter Botanic Garden Oxford 1826.

PERISTY'LUS*.

Linnean Class and Order. GYNA'NDRIA†, MONA'NDRIA.

Natural Order. ORCHI'DEÆ, *Linn.*—Juss. Gen. Pl. p. 64.—Sm. Gram. of Bot. p. 81.; Engl. Fl. v. iv. p. 3.—Lindl. Syn. p. 256; Introd. to Nat. Syst. of Bot. p. 262.—Rich. by Macgilliv. p. 412.—Loud. Hort. Brit. p. 536.—Mack. Fl. Hibern. p. 274.—Macr. Man. Brit. Bot. p. 224.—Hook. Brit. Fl. (4th edit.) p. 425.—PALMARES; order, MUSALES; sect. ORCHIDINÆ; type, ORCHIDACEÆ; Burn. Outl. of Bot. v. i. pp. 391, 437, 458, & 461.

GEN. CHAR. *Perianthium*‡ *(calyx & corolla)* (see figs. 1. & 2.) superior, permanent. *Sepals* (fig. 2. *a*, *a*, *a*.) 3, concave, converging, ribbed, nearly equal. *Petals* (fig. 2. *b*, *b*.) 2, rather smaller than the sepals, egg-shaped, converging. *Lip (nectary)* (fig. 2. *c*.) lobed, spurred at the base. *Spur* (fig. 1. *c*., and fig. 2. *d*.) very short, usually inflated. *Anthers* (see fig. 3.) of 2 oblong, membranous cells, parallel or diverging. *Glands* of the pollen-masses stalked, naked. *Germen* (see fig. 1. *b*., & fig. 2. *f*.) oblong, or nearly cylindrical, furrowed, spirally twisted. *Style (column)* thick and short. *Stigma* a shining moist depression in front of the style. *Capsule* oblong, spiral. *Seeds* numerous.

The very short, usually inflated, *spur;* the *anthers* of 2 parallel or diverging cells; and the stalked *pollen-masses* with 2 naked *glands;* will distinguish this from other genera in the same class and order.

Two species British.

PERISTY'LUS A'LBIDUS. White Peristylus. White cluster-rooted Orchis. Whitish Hand-Orchis.

SPEC. CHAR. Knobs [of the root] tapering, clustered, undivided. Lip in three deep acute lobes; the middle one largest; spur one-third the length of the germen.

PERISTYLUS ALBIDUS, Lindl. Syn. (2nd ed.) p. 261.—*Platanthera albida*, Lindl. Syn. (1st ed.) p. 261.—*Habenaria albida*, Brown in Ait. Hort. Kew. (2nd edit.) vol. v. p. 193.—Hook. Fl. Lond. t. 107.; Brit. Fl. p. 373.—Macr. Man. Brit. Bot. p. 227.—Hook. Fl. Scot. p. 252.—Grev. Fl. Edin. p. 185.—Dick. Fl. Abred. p. 53.—Irv. Lond. Fl. p. 277.—Mack. Catal. Pl. of Irel. p. 76.; Fl. Hibern. p. 277.—*Orchis albida*, Willd. Sp. Pl. v. iv. pt. 1. p. 38.—Sm. Engl. Fl. v. iv. p. 18.—Winch's Fl. of Northumberl. and Durh. p. 56.—*Orchis pusilla alba odorata, radice palmata*, Ray's Syn. p. 381.—*Pseudo-orchis alpina, flore herbaceo*, Mich. Gen. p. 30. t. 26. f. A. B. C.—*Satyrium albidum*, Linn. Sp. Pl. p. 1338.—Huds. Fl. Angl. (2nd ed.) p. 387.—Sm. Fl. Brit. v. iii. p. 929.—Engl. Bot. t. 505.—With. (7th ed.) v. ii. p. 35.—Light. Fl. Scot. v. i. p. 519.—*Entaticus albidus*, Gray's Nat. Arr. v. ii. p. 205.

Fig. 1. A separate Flower; *a*, bractea; *b*, the germen; *c*. the spur.—Fig. 2. Front view of a Flower: *a*, *a*, *a*, sepals; *b*, *b*, petals; *c*, the lip; *d*, the spur; *e*, the column and pollen-masses; *f*, the germen.—Fig. 4. Summit of the Column, and the Pollen-masses.—*All, more or less, magnified.*

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* From *peri*, Gr. *around;* and *stylos*, Gr. a *column*.

† See folio 8, note †. ‡ See folio 33, note ‡.

Localities.—In mountainous pastures; not common.—*Cheshire;* In Cocker's Fields, Stayley Wood: B. G.—*Cumberland;* Keswick. Mountainous pastures above Borrowdale: B. G. Hill-sides above Watendlath Tarn, and between Watendlath and Borrow: N. B. G.—*Durham;* Near Winch Bridge, and between Whey Syke and Widdy Bank, also on the banks of Nucton Bourn: N. J. Winch, Esq.—*Northamptonsh.* In a boggy place two miles from Stanford, in the way to Stilton: Merrett (before 1666); suggested to be *Peristylus viridis.*—*Northumberland;* In pastures at Shewing Shields near the Roman Wall; also near Roadley Lake; Fallowlees Bourn, and Baybridge above Blanchland; at the north end of Crag Close near Barwesford; and in a field between Cambro and the Close Houses: *Fl. of N. & D.*—*Westmoreland;* Barrowfield Wood: N. B. G.—*Worcestersh.* Cradley Park, and Wickbury Hill, near Hagley: Mr. Scott, in *Illust.*—*Yorksh.* Mountains N. of Helmsley, rare. Moist meadows about Malham; Giggleswick Tarn near Settle; heathy moors above Hawnby near Thirsk; and at Dallow Gill: B. G. Thoraldby, Wensleydale, and Ingleton: N. B. G.—WALES. *Cardigansh.* On the exposed grassy hills, which surround Hafod: B. G.—*Caernarvonsh.* Road-side from Bangor to Llyn Ogwen; in moist meadows near Lord Penrhyn's slate quarries in Nant Francon; plentifully in Glyn Meadow between Cwn y Clo and Dolbadarn Castle; and near Llyn Cowlid in the meadows N. W. of Capel Cerig; rocky pastures near Bluen y Nant near Llyn Ogwen; and on the back of Snowdon on the way from Llanberris to Caernarvon: B. G.—SCOTLAND. More or less frequent in the counties of *Aberdeen, Argyle, Ayr, Banff, Dumbarton, Elgin, Fife, Forfar, Inverness, Lanark, Orkney, Perth, Renfrew, Ross,* and *Stirling.*—IRELAND. Mountain pastures, not unfrequent. Luggelaw and other places in the county of Wicklow. Abundant in Antrim and Derry: *Fl. Hibernica.*

Perennial.—Flowers in June and July.

Root of about 3 pair of tapering, somewhat flexuose, cylindrical, undivided, brownish *knobs*, with 3 or 4 slender, thread-shaped radicles, from above their common origin. *Stem* from 5 inches to about a foot high, upright, leafy, slightly striated, hollow. *Leaves* light green, rather glaucous beneath; upper ones spear-shaped; lower ones broader, sheathing at the base, and rounded at the summit. *Flowers* numerous, small, slightly fragrant; in a cylindrical, close, narrow spike. *Bracteas* (fig. 1. *a.*) egg-spear-shaped, bluntish, about as long as the *germen*. *Sepals* (fig. 2. *a, a, a.*) and *petals* (fig. 1. *b, b.*) egg-shaped, concave, moderately converging, cream-coloured, very similar both in form, size, and hue. *Lip* (fig. 1. *c.*) a little longer, and greener, somewhat deflexed; 3-lobed, the middle lobe the largest, and sometimes bluntish. *Spur* (fig. 1. *c.* & fig. 2. *d.*) incurved, short and thick. *Anthers* (see fig. 2.) yellowish. *Pollen-masses* (see fig. 2. *e.*, and fig. 3.) yellow.

A curious little plant, native of many other parts of Europe as well as of Britain.

The *Natural Order* Orchi'deæ is composed of monocotyledonous, *herbaceous plants*, frequently, in the terrestrial species, with tuberous roots. Their *leaves* are simple, quite entire, and often articulated with the stem. Their *flowers* are produced in terminal or radical spikes, racemes, or panicles; sometimes solitary. The *perianthium* is superior, ringent, in 6 segments in 2 rows, mostly coloured; one, the lowest one (so situated from the twisting of the ovary) different in form from the rest, and often spurred. The *stamens* are 3, united in a central column, the two lateral ones usually abortive, the central one perfect; or the central one abortive, and the two lateral ones perfect. The *anther* is 2- or 4- or 8-celled, and often deciduous. The *pollen* is powdery or frequently cohering in waxy masses. The *ovary* is 1-celled, with 3 parietal receptacles. The *style* forms part of the column with the stamens. The *stigma* is a viscid space in front of the column. The *capsule* is 3-valved, rarely baccate; and the *seeds* are numerous, with a loose, reticulated *testa;* and no *albumen.*



Spergula arvensis. Corn Spurrey ☺

Mathews Del & Sc

Pub^d by W Baxter Botanic Garden, Oxford 1840

SPE'RGULA *.

Linnean Class and Order. DECA'NDRIA †, PENTAGY'NIA.

Natural Order. CARYOPHY'LLEÆ ‡, *Linn.*—Juss. Gen. Pl. p. 299.—Sm. Gram. of Bot. p. 159.—Lindl. Syn. p. 43.; Introd. to Nat. Syst. of Bot. p. 156.—Rich. by Macgilliv. p. 507.—Loud. Hort. Brit. p. 501.—Don's Gen. Syst of Gard. and Bot. v. i. p. 379.—Mack. Fl. Hib. p. 40.—Hook. Brit. Fl. (4th ed.) p. 400.—ROSALES; subord. RHŒADOSÆ; sect. DIANTHINÆ; type, DIANTHACEÆ; Burn. Outl. of Bot. pp. 614, 784, 805, & 807.

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 5 egg-shaped, blunt, spreading, permanent sepals, more or less membranous at the edges. *Corolla* (fig. 2.) larger than the calyx, of 5 egg-shaped, concave, undivided, spreading petals, with very short claws (see fig. 3). *Filaments* (see figs. 4 & 5.) 10, sometimes but 5, awl-shaped, shorter than the corolla. *Anthers* roundish, 2-lobed. *Germen* (fig. 6.) superior, egg-shaped. *Styles* (see fig. 6.) 5, short, slender, spreading. *Stigmas* downy. *Capsule* (figs. 7 & 8.) egg-shaped, membranous, of 1 cell and 5 (some authors say 6) connected valves, covered with the permanent calyx. *Seeds* (see figs. 9 & 10.) roundish or kidney-shaped, compressed, rough or smooth, sometimes with a membranous border.

The *calyx* of 5 sepals; the *corolla* of 5 undivided petals; and the *capsule* of 1 cell and 5 valves; will distinguish this from other genera in the same class and order.

Four species British.

SPE'RGULA ARVE'NSIS. Corn Spurrey. Field Spurrey. Pick-purse. Sandweed. Yarr.

SPEC. CHAR. Leaves whorled, with minute membranous stipulas at their base. Stalks of the fruit reflexed. Seeds more or less margined.

Engl. Bot. t. 1535.—Curt. Fl. Lond. t. 307.—Fl. Dan. t. 1033.—Linn. Sp. Pl. p. 630.—Huds. Fl. Angl. (2nd edit.) p. 202.—Willd. Sp. Pl. v. ii. pt. 1. p. 818.—Sm. Fl. Brit. v. ii. p. 502.; Engl. Fl. v. ii. p. 336.—With. (7th ed.) v. ii. p. 567.—Gray's Nat. Arr. v. ii. p. 652.—Lindl. Syn. p. 48.—Hook. Brit. Fl. p. 215.—Macr. Man. Brit. Bot. p. 32.—Lightf. Fl. Scot. v. i. p. 243.—Sibth. Fl. Oxon. p. 148.—Abbot's Fl. Bedf. p. 102.—Thom. Pl. Berw. p. 48.—Davies' Welsh Bot. p. 44.—Purt. Midl. Fl. v. i. p. 223.—Relh. Fl. Cant. (3rd ed.) p. 186.—Hook. Fl. Scot. p. 144.—Grev. Fl. Edin. p. 104.—Fl. Devon. pp. 78 & 183.—Johnst. Fl. Berw. v. i. p. 102.—Winch's Fl. of Northumbl. and Durh. p. 30.—Walker's Fl. of Oxf. p. 130.—Bab. Fl. Bath. p. 8.; Supp. p. 71.; Prim. Fl. Sarn. p. 15.—Dick. Fl. Abred. p. 39.—Irv. Lond. Fl. p. 170.—Luxf. Reig. Fl. p. 41.—Mack. Catal. Pl. Irel. p. 45.; Fl. Hibern. p. 44.—*Spergulária arvensis*, Don's Gen. Syst. of Gard. and Bot. v. i. p. 425.—*Alsine spergula dicta major*, Bauh. Pin. p. 251.—Ray's Syn. p. 351.—*Saginæ spergula*, Johnson's Gerarde, p. 1125.

LOCALITIES.—In cultivated fields and gardens, on a sandy soil; not uncommon.

Fig. 1. Calyx.—Fig. 2. Corolla.—Fig. 3. A Petal.—Fig. 4. Stamens and Pistil.—Fig. 5. A separate Stamen.—Fig. 6. Germen, Styles, and Stigmas.—Fig. 7. A Capsule.—Fig. 8. The same with the valves open.—Figs. 9 and 10. Seeds.—Fig. 11. Receptacle.—Fig. 12. One of the Joints of the Stem.—*All magnified*; figs. 9 and 10, highly so.

* From *spargo*, to scatter; from the seed being so widely dispersed. HOOKER.

† See folio 37, note †. ‡ See folio 152, *a*.

Annual.—Flowers in June and July.

Root small, tapering, fibrous. *Stems* several, from 6 to 12 inches long, either nearly upright, or decumbent, moderately branched, jointed, leafy; nearly cylindrical, clothed, more or less, with spreading glandular hairs, especially the upper part, the lower part smooth, and almost naked. *Branches* terminated by a forked, divaricated, downy, viscid *panicle*. *Leaves* narrow, strap-shaped, somewhat fleshy, convex on the upper surface, furrowed on the under, smooth, or clothed more or less with short, projecting, bristly hairs; of 2 bundles from each joint, spreading in a whorled manner. *Stipulas* very short, membranous, 2 at the base of each whorl; joints swollen. *Peduncles (flower-stalks)* from half an inch to an inch or more in length, cylindrical, slender, downy, viscid, single-flowered, spreading, with a small, membranous bractea, at their base; strongly reflexed as the fruit ripens. *Calyx* downy; *sepals* egg-shaped, blunt, with membranous margins. *Corolla* white; *petals* egg-shaped, a little longer than the calyx. *Stamens* usually 10, sometimes 5, or some intermediate number. *Styles* constantly 5. *Capsule* longer than the calyx, and opening more than half way down into 5 entire valves. *Seeds* many, roundish, slightly compressed, black, dotted with raised points, varying in the breadth of the margin or border.

This plant is a native throughout Europe; also in North America on the banks of the Columbia and about Quebec. In the Netherlands and in Germany the seed of this plant is sown on corn-stubbles, to supply a bite for sheep during Winter. It may be sown and reaped in eight weeks, either in Autumn or Spring. It is said to enrich the milk of cows, so as to make it afford excellent butter, and the mutton fed on it is said to be preferable to that fed on turnips. Hens eat *Spurrey* greedily, and it is supposed to make them lay a great number of eggs, whether in hay, or cut green, or in pasture. Von Thaer observes, it is the most nourishing in proportion to its bulk, of all forage, and gives the best flavoured milk and butter. It has been recommended to be cultivated in England, but it is not likely that such a plant can ever pay the expence of seed and labour in this country, even on the poorest soil. We have fortunately, however, better plants for such soils, such as *Rie*, *Peas*, *Tares* or *Vetches*, *Buckwheat*, *Carrots*, *&c.* The inhabitants of Finland and Norway make bread of the seeds of the Spurrey, when their crops of corn fail. See *Don's Gen. Syst. of Gard. and Bot.*; *Martyn's Mill. Dict.*, *&c.*

The flowers are very sensible to atmospheric changes. Dr. Johnston, in his excellent *Flora of Berwick-upon-Tweed*, says, We have seen a field, whitened with its numerous blossoms, have its appearance quite changed by the petals closing on a black cloud passing over, and discharging a few drops of rain.

Spergula pentandra of Engl. Bot. t. 1536, is considered to be not specifically distinct from *S. arvensis*.



Pinus sylvestris. Scotch Fir ♄

Russell. Del. Mathews. Sc.

Pub^d by W. Baxter, Botanic Garden, Oxford, 1840.

PI'NUS*.

Linnean Class and Order. MONŒ'CIA †, MONADE'LPHIA ‡.

Natural Order. CONI'FERÆ, *Linn.*—Juss. Gen. Pl. p. 411.—Sm. Gram. of Bot. p. 190.—Lindl. Syn. p. 240.; Introd. to Nat. Syst. of Bot. p. 247.—Rich. by Macgilliv. p. 546.—Loud. Hort. Brit. p. 535.; Arb. et Frutic. Brit. p. 2103.—Mack. Fl. Hibern. p. 258.—Hook. Brit. Fl. (4th edit.) p. 420.—PINEALES; sect. ABIETINÆ; type, PINACEÆ, Burn. Outl. of Bot. v. i. pp. 492 & 494.

GEN. CHAR. *Sterile Flowers* (see figs. 1 & 2). *Catkin* (fig. 2.) deciduous, of numerous, naked, spreading stamens (fig. 2, *b*.) connected by one common stalk. *Calyx* none. *Corolla* none. *Filaments* (see fig. 3.) very short. *Anthers* (fig. 3.) upright, wedge-shaped, of 2 cells, bursting lengthwise, crowned with a membranous crest.—*Fertile Flowers* (see figs. 4 & 5). *Catkin* (fig. 5.) egg-shaped, or roundish, of numerous, imbricated, close, rigid, permanent, 2-flowered, 2-lipped scales (fig. 6). *Calyx* none. *Corolla* none. *Germens (ovules)* 2, at the base of each scale within. *Style*, 1 to each germen. *Stigma* prominent, obtuse, evanescent. *Cone* or *Strobile* (fig. 7.) egg-shaped, or between cone-shaped and egg-shaped in most species, consisting of hard woody truncated scales, excavated at the base for the reception of the seeds. *Seeds* (fig. 8.) oval, each crowned with a large membranous wing, shorter than the scale.—*Leaves* in groups of 2, 3, or 5; each group arising out of a scaly sheath.

The *sterile flowers* in crowded racemose *catkins*, with peltate scales, bearing 2, 1-celled, sessile *anthers*; the *fertile flowers* in egg-shaped *catkins*, with closely imbricated, 2-flowered scales; the *cones* with oblong, blunt, woody scales, with an angular termination; and the leaves in groups of 2, 3, or 5; will distinguish this from other genera, destitute of calyx and corolla, in the same class and order.

One species British.

PI'NUS SYLVE'STRIS. The Wood Pine. The Scotch Pine. Wild Pine-tree. Scotch Fir.

SPEC. CHAR. Leaves rigid, in pairs. Cones between egg-shaped and cone-shaped, acute; young ones stalked, recurved, as long as the leaves, from 1 to 3 together. Crest of the anthers very small.

Engl. Bot. t. 2460.—Lamb. Pin. v. i. t. 1.—Woodv. Med. Bot. t. 207.—Mill. Illustr. t. 82.—Loud. Arb. et Frutic. Brit. p. 2153. plates 312, 312 *a*, and 313; and figs. 2043 to 2056.—Hunt. Evel. Silva, p. 262, with a plate.—Johnson's Gerarde, p. 1356.—Linn. Sp. Pl. p. 1418.—Huds. Fl. Angl. (2nd ed.) p. 423.—Willd. Sp. Pl. v. iv. pt. 1. p. 494.—Sm. Fl. Brit. v. iii. p. 1031.; Engl. Fl. v. iv. p. 159.—With.

Fig. 1. A Staminiferous Catkin.—Fig. 2. Same magnified; *a*, bracteas; *b*, anthers.—Fig. 3. An Anther, magnified.—Fig. 4. A Pistilliferous Catkin.—Fig. 5. Same magnified.—Fig. 6. A separate Scale of ditto.—Fig. 7. A Cone.—Fig. 8. A Seed.

* From *pin* or *pen*, which, in Celtic, means a *crag* or stony mountain, still so called in Wales: (as *Ben* in Scotland): where the *Pine* delights to grow, "moored in the rifted rock." HOOKER.

The Pine is the badge of the clan M'GREGOR.

"Hail to the chief who in triumph advances!
Honoured and blessed be the evergreen *Pine!*
Long may the tree in his banner that glances,
Flourish the shelter and grace of our line!"—LADY OF THE LAKE.

† See folio 83. ‡ See folio 186.

(7th ed.) v. iii. p. 815.—Gray's Nat. Arr. v. ii. p. 223.—Lindl. Syn. p. 241.—Hook. Brit. Fl. p. 411.—Macr. Man. Brit. Bot. p. 219.—Lightf. Fl. Scot. v. ii. p. 587.—Thornt. Fam. Herb. p. 783, with a figure.—Mem. Caled. Hort. Society, v. i. p. 121.—Davies' Welsh. Bot. p. 91.—Hook. Fl. Scot. p. 275.—Grev. Fl. Edin. p. 204.—Winch's Fl. of Northumb. and Durh. p. 62.—Lindl. Fl. Med. p. 553.—Dick. Fl. Abred. p. 56.—Irv. Lond. Fl. p. 113.—Mack. Catal. of Pl. of Irel. p. 83.; Fl. Hib. p. 258.—*Pinus sylvestris foliis brevibus glaucis, conis parvis albentibus*, Ray's Syn. p. 442.—*Pinus sylvestris vulgaris*, Bauh. Hist. v. i. pt. II. lib. 9. p. 253, with a figure.

Localities.—In many parts of the Highlands of Scotland, where it constitutes vast natural forests.

Tree.—Flowers in May and June.

A straight, hardy, long-lived, evergreen *tree*, from 60 to 80, or sometimes 100 feet high, with horizontal branches at regular intervals, disposed in whorls of from 2 to 4 together, sometimes 5 or 6. *Leaves* in pairs, sheathed at the base, rigid, from an inch and a half, to two inches and a half long, strap-shaped, narrow, minutely serrulated, striated, smooth, blunt, with a small white point; slightly concave on the upper surface, convex on the under; of a light bluish green when young, becoming of a dark green afterwards. *Sterile Cathkins* (figs. 1 & 2.) in a whorl or whorls at the extremity of the branch of the preceding year, with several chafy, scaly, concave bracteas at their base. *Anthers* sessile, with a profusion of pollen, which has sometimes been carried to a distance by the wind in such quantities, where this tree abounds, as to alarm the ignorant with the notion of its raining sulphur. *Fertile Cathkins* (fig. 4.) solitary, globular, variegated with purple and green, with several serrated, pointed, scaly bracteas (see fig. 5). The first year, after impregnation, the young fruit becomes lateral, stalked, and reflexed, green, of an egg-shaped figure; and the second year ripens into egg-shaped, pointed, hard, tessellated but unarmed, woody cones, whose dry scales finally gape and allow the winged seeds to escape. *Cotyledons* from 5 to 7.

The *Scotch Fir* is truly wild in the Highlands of Scotland, where, Dr. Greville says, "it is a magnificent tree, and differing as much from the formal ornament of the plantation, as the hardy mountaineer from the sedentary mechanic of a crowded city." It is also a native of Denmark, Norway, and Sweden. It appears to have been formerly abundant in Ireland, as trunks of this species, of very large dimensions, are often found in bogs, sufficiently fresh for roofing houses. Next to the Larch this species affords the most valuable and useful timber. Two varieties of it afford the white and red deal of commerce. It also yields abundance of turpentine, resin, pitch, and tar. The resin is procured by wounding the tree, the tar by distilling the wood, especially that of the roots. The bark has been used with much success in tanning; and in the northern parts of Europe it is made into a wretched substitute for bread. An infusion of the buds has been recommended as an antiscorbutic; as are the fresh cones boiled, which also are a principal ingredient in spruce beer. The resinous roots are dug out of the ground in many parts of the Highlands of Scotland, and being divided into small splinters, are used by the inhabitants instead of candles, the younger individuals of a family holding them in turn. Fishermen make ropes of the inner bark.

The following fungi are parasitic on different parts of the tree. On the leaves, *Sphæ'ria pinástri*; and *Æcídium Pini*. On the branches, *Cenángium ferruginósum*; and *Sphæ'ria gelatinosa*. On the fallen cones, *Peziza conígena*; and *Hystérium conigenum*. On the bark, *Phacídium Pini*. On the dead wood, *Peziza chrysócoma*; *Stictis paralléla*; *Dacrymy'ces stillátus*; *Agy'rium rúfum*; *Sphæ'ria strigósa*; *Sph. sordária*; *Sph. pilífera*; *Lophium mytilinum*; and *Lóphium elátum*. See Hook. Brit. Fl. v. ii. pt. II.

Every particular that is known respecting the history, properties, uses, propagation, culture, statistics, &c. &c. of the Scotch Fir, is given in the *Arboretum et Fruticetum Britannicum*, by Mr. Loudon; a work of inestimable value to every one who is at all interested in the subject of which it treats.



Tragopogon pratensis. Yellow Goats-beard. 8

Mathews Del. & Sc. Pub.d 1st by W. Baxter, Botanic Gardn, Oxford 1810.

TRAGOPO'GON*.

Linnean Class & Order. SYNGENE'SIA†, POLYGA'MIA, ÆQUALIS‡.

Natural Order. COMPO'SITÆ§, *(Linn.)*, tribe, CICHORA'CEÆ, Lindl. Syn. pp. 140 & 155.; Introd. to Nat. Syst. of Bot. pp. 197 and 201.—Loud. Hort. Brit. pp. 520 & 521.—Mack. Fl. Hibern. pp. 142 & 159.—Hook. Brit. Fl. (4th ed.) p. 410.—CICHORA'CEÆ, Juss. Gen. Pl. p. 168.—Sm. Gr. of Bot. p. 120.—SYNANTHE'REÆ, Rich. by Maegilliv. p. 451.—SYRINGALES; subord. ASTEROSE; type, CICHORACEÆ; Burn. Outl. of Bot. pp. 900, 901, & 935.

GEN. CHAR. *Involucrum (common calyx)* (fig. 1, *a.*) simple, of several spear-shaped equal scales, ranged alternately in two rows, all connected at the base, permanent. *Corolla* (fig. 1, *b.*) compound, imbricated, uniform; *florets* (see fig. 2.) numerous, all perfect, uniform, strap-shaped, blunt, with 5 teeth; the outer ones rather the longest. *Filaments* (see fig. 3.) 5, from the tube, hair-like, very short. *Anthers* (see figs. 2 & 3.) in a cylindrical tube. *Germen* (see figs. 2 & 3.) inversely egg-shaped. *Style* (see figs. 2 & 3.) thread-shaped, as long as the anthers. *Stigmas* (see figs. 2 & 3.) 2, revolute. *Seed-vessel* none, except the converging, pointed, *common calyx* (see fig. 4.), about as long as the seeds, tumid at the base, finally reflexed. *Seeds* (see fig. 5, *a.*) one to each floret, oblong, angular, longitudinally striated, rough, tapering at each end, crowned by the orbicular, flattish *seed-down (pappus)*, consisting of about thirty spreading feathery rays, on a long awl-shaped stalk. *Receptacle* (see fig. 5, *b.*) flat, naked, minutely cellular.

The simple *involucrum* of several equal scales; the longitudinally striated *seeds;* the stalked, feathery *pappus;* and the naked *receptacle;* will distinguish this from other genera in the same class and order.

Two species British.

TRAGOPO'GON PRATE'NSIS. Meadow Goat's-beard. Yellow Goat's-beard. Joseph's Flower. Star of Jerusalem. Noon-tide. Go-to-bed at Noon.

SPEC. CHAR. Involucrum about as long as the florets. Leaves undivided, keeled, smooth, tapering; dilated and somewhat undulated at the base. Peduncles cylindrical.

Engl. Bot. t. 434.—Fl. Dan. t. 906.—Willd. Sp. Pl. v. iii. pt. III. p. 1492.—Sm. Fl. Brit. v. ii. p. 812.; Engl. Fl. v. iii. p. 337.—With. (7th edit.) v. iii. p. 880.—Lindl. Syn. p. 161.—Hook. Brit. Fl. p. 337.—Maer. Man. Brit. Bot. p. 141.—Thom. Pl. Berw. p. 78.—Davies' Welsh Bot. p. 73.—Purt. Midl. Fl. v. ii. p. 364.—Relh. Fl. Cant. (3rd ed.) p. 315.—Hook. Fl. Scot. p. 226.—Grev. Fl. Edin. p. 165.—Fl. Devon. pp. 128 & 154.—Johnst. Fl. Berw. v. i. p. 172.—Winch's Fl. of Northumbl. and Durh. p. 50.—Walker's Fl. of Oxf. p. 220.—Pamp. Pl. of Battersea, p. 14.—Bab. Fl. Bath. p. 29.; Prim. Fl. Sarn. p. 57.—Dick. Fl. Abred. p. 49.

Fig. 1. A Flower; *a.* the involucrum or common calyx; *b.* the corolla.—Fig. 2. A single Floret.—Fig. 3. Stamens and Pistil, shewing the 5 stamens, with their filaments, and united anthers; and the germen, pappus, style, and stigmas.—Fig. 4. The enlarged Involucrum, enclosing the seeds.—Fig. 5. The Involucrum with the scales reflexed, after seeds are ripe; *a.* a seed; *b.* the receptacle.

* From *tragos*, Gr. a *goat;* and *pogon*, Gr. *beard;* from the beautifully bearded fruit. HOOKER.

† See folio 91, note †. ‡ See folio 147, note ‡. § See folio 27, *a.*

—Luxf. Reig. Fl. p. 66.—Cow. Fl. Guide, p. 51.—Mack. Fl. Hibern. p. 165.—*Tragopogon pratense*, Linn. Sp. Pl. p. 1109.—Huds. Fl. Angl. (2ud ed.) p. 335.—Gray's Nat. Arr. v. ii. p. 431.—Lightf. Fl. Scot. v. i. p. 426.—Bryant's Fl. Dietet. p. 48.—Sib. Fl. Oxon. p. 236.—Abb. Fl. Bedf. p. 168.—Irv. Lond. Fl. p. 150.—Mack. Catal. Pl. of Irel. p. 69.—*Tragopogon luteum*, Ray's Syn. p. 171.—Johnson's Gerarde. p. 735.

LOCALITIES.—Meadows and pastures; not uncommon in ENGLAND; more rare in SCOTLAND, and IRELAND.

Biennial.—Flowers in June.

Root tapering, and, like every other part of the plant, abounding with milky juice, which is rather bitter, but not acrid. *Stem* from 1 to 2 feet high, upright, much branched, round, smooth, leafy. *Leaves* alternate, long and very narrow; taper-pointed, the upper part often flaccid, or curled; channelled on the upper side, keeled on the under, their base dilated, somewhat sheathing, and generally more or less undulated; those from the root rather the broadest. *Flowers* large, two inches wide, bright yellow, solitary, on terminal, cylindrical peduncles, closing before noon, except in very cloudy weather. *Scales* of the *involucrum* spear-shaped, pointed, flat, equal; in two series, as long as, or often longer than, the longest florets. Outer *florets* much longer than the rest, all 5-toothed at the apex. *Anthers* brown or purplish. *Pollen* yellow. *Germen* with a tuft of hair at the summit. *Seeds* large, curved, furrowed, rugged, light brown. *Pappus* radiated, and delicately feathered, on a long pedicel.

The proportional lengths of the involucrum and the corolla appear to be very variable in different individuals of this species. Mr. WOODWARD says, that in specimens gathered in Huntingdonshire the involucrum was always exactly equal to the outer florets, but that in Norfolk it invariably exceeded them. Mr. STACKHOUSE remarks, that the involucrum in Cornish plants is always much longer than the florets; and Mr. BABINGTON has found it with the involucrum twice the length of the florets, at Bath, Cambridge, Shrewsbury, and in Needwood Forest. In the neighbourhood of Oxford, the involucrum in this species is much longer than the florets, in many instances twice as long. This being the case, the proportional lengths of the involucrum and corolla, as Mr. BABINGTON justly observes, appear to be useles as specific characters in this genus.

Tragopogon pratensis is a native of Europe and Siberia. In some parts of England it is called *Buck's-beard*, from the German; and *Go-to-bed-at-noon*, from the circumstance of the flowers closing about that time. The Rev. Mr. PLYMLEY, in his General View of the Agriculture of Shropshire, however, says that he observed it to shut its flowers about nine o'clock in the morning, on clear days, in Leicestershire; and that he was informed by an accurate Botanist in Edinburgh, that its flowers remain open till twelve, in clear weather, in that part of Scotland. According to the observations of LINNÆUS, the flowers open about three o'clock in the morning, and close between nine and ten. Before the stems shoot up, the roots, boiled like Asparagus, have the same flavour, and are nearly as nutricious. The spring shoots, when about three or four inches high, are also eaten by some in the same manner.

Cows, sheep, and horses eat it; swine devour it greedily; goats are not fond of it.

Æcidium Tragopogonis, Pers.; *Æ. Cichoracearum*, Johnston's Fl. of Berwick, v. ii. p. 205, is sometimes parasitic on the stems, leaves, and involucrums of this plant.

The species usually cultivated in gardens for culinary purposes, is the *Tragopogon porrifolius*, (*Salsafy* of the Gardens,) also a native of Britain; but it is, by some, considered inferior to the common one.



Rhodiola rosea Rose-root. 4

Fitz Bell. Del. Mathews Sc.
Pubd by W. Baxter Botanic Garden Oxford 1830

RHODI'OLA *.

Linnean Class and Order. DIŒ'CIA †, OCTA'NDRIA ‡.

Natural Order. CRASSULA'CEÆ, *De Cand.*—Lindl. Syn. p. 63.; Introd to Nat. Syst. of Bot. p. 161.—Rich. by Macgilliv. p. 514.—Loud. Hort. Brit. p. 516.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 97.—Mack. Fl. Hibern. p. 59.—CRA'SSULÆ, Juss. Dict. des. Sc. Nat. v. xi. p. 369.—SUCCULE'NTÆ, *Linn.*—Vent. Tabl. v. iii. p. 271.—SEMPERVIVÆ, Juss. Gen. Pl. p. 307.—Sm. Gram. of Bot. p. 162.—ROSALES; sect. CRASSULINÆ; type, CRASSULACEÆ; Burn. Outl. of Bot. v. ii. pp. 614, 730, & 735.

GEN. CHAR. *Sterile Flower* (fig. 1). *Calyx* (see fig. 2.) concave, in 4 deep, equal, spreading, permanent segments. *Corolla* (see figs. 2 & 3.) of 4 spear-shaped, bluntish, moderately spreading, deciduous petals, much longer than the calyx, and alternate with its segments. *Nectaries* 4, glandular, notched, opposite to the petals, shorter than the calyx. *Filaments* (see fig. 2.) 8, awl-shaped, equal in length to the petals. *Anthers* roundish. Rudiments of 4 *germens*, more or less perfect, with abortive *styles* and *stigmas*.—*Fertile Flower* (see figs. 4 & 5). *Calyx* as in the *sterile flower*. *Corolla* less developed, variable in length. *Nectaries* as in the *sterile flowers*. *Stamens* none. *Germens* (see fig. 5.) 4, superior, upright, oblong, triangular, each terminating in a short, thick, simple *style* (see fig. 7). *Stigma* blunt. *Capsules* (fig. 6.) 4, pointed, bursting at the inner margin, of 1 cell. *Seeds* roundish, numerous, ranged along the inner margin, at each side.

The *sterile flower* with a 4-parted *calyx*, 4 *petals*, and 4 notched *glands;* and the *fertile flower* with a 4-parted *calyx*, 4 *petals*, 4 notched *glands*, 4 *germens*, and 4 many-seeded *capsules;* will distinguish this from other genera in the same class and order.

One species British.

RHODI'OLA ROSEA. Rose-smelling Rose-root. Mountain Rose-root. Rose-wort.

SPEC. CHAR. Stem simple. Leaves oblong, serrated at the tip, smooth, glaucous. Root rather tuberous. Flowers corymbose, usually of 4 petals.

Engl. Bot. t. 508.—Fl. Dan. t. 183.—Linn. Sp. Pl. p. 1465.—Huds. Fl. Angl. (2nd ed.) p. 434.—Willd. Sp. Pl. v. iv. pt. ii. p. 807.—Sm. Fl. Brit. v. iii. p. 1082.; Engl. Fl. v. iv. p. 246.—With. (7th ed.) v. ii. p. 505.—Hook. Brit. Fl. p. 437.—Lightf. Fl. Scot. v. ii. p. 619.—Hook. Fl. Scot. p. 289.—Johnst. Fl. Berw. v. i. p. 220.—Winch's Fl. of Northumb. and Durh. p. 64.—Trevel. Faroe Isl. p. 8.—Irv. Lond. Fl. p. 291.—Mack. Catal. Pl. of Irel. p. 86.; Fl. Hibern. (Addenda) p. 255.—*Sedum Rhodiola*, Lindl. Syn. p. 64.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 114.—Macr. Man. Brit. Bot. p. 88.—*Sedum dioicum*, Gray's Nat. Arr. v. ii. p. 539.—*Anacampseros radice rosam spirante major*, Ray's Syn. p. 269.—*Rhodia radix*, Bauh. Pin. p. 286.—Johns. Gerarde, p. 532.—Merr. Pin. p. 104.

Figs. 1, 2, & 3. Sterile Flowers.—Figs. 4 & 5. Fertile Flowers.—Fig. 6. Fruit.—Fig. 7. A Germen, and Gland.

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* From *rodon*, Gr. a *rose;* in reference to the fragrance of the roots. DON.

† See folio 113, note †. ‡ See folio 42, note †.

Localities.—In the fissures of alpine rocks, or cliffs, near the sea.—*Cumberland;* Keswick. Ravine of the Screes, near Wastwater: B. G. Various rocks of the Scawfell Mountains, Grass-moor, Grange Fell, Helvellyn, &c.: Mr. H. C. Watson, in N. B. G. On Cross Fell, with *Epilobium alsinifolium:* N. B. G.—*Durham;* Maes Beck: B. G.—*Lancashire;* On the moist rocks in Farnfells, in the bottom of Lancashire, on the highest Fell towards Hawkshead: Merrett. On a mountain called the Old Man, at Coniston Water Head: Mr. Woodward. Near Mr. Rigge's Slate Quarries at Coniston: Mr. Jackson.—*Northumberland;* At the head of Cauledge Bourn, among the Cheviots: W. C. Trevelyan, Esq. Henhole, Cheviot: N. B. G.—*Westmoreland;* Maze Beck Sear near Appleby: B. G. High-street, Westmoreland, on the edge of a precipice called Blea Water Crag: Mr. Gough. Striden edge, Helvellyn: N. B. G.—*Yorkshire;* On Ingleborough and Hardknot, plentifully: Ray. Ingleborough, 1833: N. B. G. Pennighaut Hill: N. B. G.—WALES. *Caernarvonshire;* On Snowdon: Ray. Rocks of Cwm Idwel, and Iscolion dûon. Abundant on the ridge of rocks immediately above Llyn Fynnon Las: B. G. Moist rocks about the Lake on the right-hand ascending Snowdon from Llanberris. Rocks at Twll du, on Cwm Idwel: N. B. G.—*Merionethshire;* Cader Idris: Ray.—SCOTLAND. *Argylesh.* Glencoe; Locheil Moors: N. B. G.—*Berwicksh.* On Fastcastle; on rocks between Lamberton and Burnmouth; at the foot of a deep glen about a mile south of Fasteastle: Dr. Johnstone, in *Fl. of Berw.* Cliffs at St. Abb's Head: N. B. G.—*Forfarsh.* Rocks on the Clova Mountains, in many places: N. B. G.—*Inverness-shire;* Fall of Foyers, and Craigue; Rocks below the snow on Ben Nevis; Red Cairn: N. B. G.—*Isle of Man:* Mr. Maenab, in N. B. G.—*Orkney Isles;* Hoy Hill: N. B. G.—*Perthsh.* Ben Lawers; Killin Mountains: N. B. G.—*Ross-shire;* Ben Wevis: N. B. G.—*Sterlingsh.* Ben Lomond: N. B. G.—*Sutherland;* On the hills about Inchnadamff; and on Ben Layhal: N. B. G.—IRELAND. Wet rocks on Brandon and other mountains in Kerry; South Isles of Arran; Ben Bulben, and Donegal Mountains. Island of Rathlin: *Fl. Hibernica.*

Perennial.—Flowers in May and June.

Root large, thick, somewhat woody, much divided at the crown; when recently dried, the whole has an agreeable scent, which has been compared to that of Roses. *Stems* several, herbaceous, simple, upright, cylindrical, smooth, sea-green, leafy, from 6 to 12 inches high. *Leaves* numerous, scattered, sessile, somewhat imbricated, egg-shaped, or oblong, entire, except towards the apex where they are generally bluntly toothed, fleshy, sea-green, sometimes tipped with purple. *Flowers* yellow, numerous, terminating the stem in a corymbose manner; they are said to be sometimes *perfect*, but are usually *staminiferous* on one plant, and *pistilliferous* on another. *Stamens* longer than the corolla. *Anthers* bluish. In the *pistilliferous flowers* the petals are often very imperfectly devoloped. *Styles* very short, pointing outwards, permanent.

Mr. Trevelyan observed this plant in the Faroe Islands, growing at all elevations, but largest in clefts of rocks near the sea; on the summits of mountains it was very dwarf, plants in flower being sometimes not more than one inch in height. (*Veg. & Temp. of Far. Isl.*)

As well as of Europe it is also a native of Siberia, and of North America, on the Arctic sea shore, and Islands; of Newfoundland and Labrador; and on the Rocky Mountains, Kotzebue's Sound, &c.

The root is sweetish when dried; in this state a fragrant water may be distilled from it. The inhabitants of the Faroe Islands use it as a remedy for scurvy. In Greenland they eat it as garden-stuff. A cataplasm of the fresh roots, applied to the forehead, is said to relieve the head-ache, and to heal malignant ulcers. Goats and sheep are said to eat the plant; but cows and swine to refuse it.—It is the badge of the Highland clan Gunn.



Callitriche Verna Spring Water-starwort ☉

Mathews Del.& Sc. Pub.d by W.Baxter Botanic Garden Oxford 1840.

CALLI'TRICHE*.

Linnean Class and Order. MONŒCIA†, MONA'NDRIA‡.

Natural Order. CALLITRICHI'NEÆ, *Link.*—Lindl. Syn. p. 242; Introd. to Nat. Syst. of Bot. p. 176.—Mack. Fl. Hibern. p. 238.—HALORA'GEÆ, *Dr. R. Brown.*—Loud. Hort. Brit. p. 514.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 700.—Hook. Brit. Fl. (4th ed.) p. 405.—NAIADES, Juss. Gen. Pl. p. 18.—Sm. Gr. of Bot. p. 66.—QUERNEALES; sect. HIPPURINÆ; type, HIPPURIDACEÆ; subty. CALLITRICHIDÆ; Burn. Outl. of Bot. v. ii. p. 523, 576, & 577.—INUNDATÆ, *Linn.*

GEN. CHAR. *Flowers* usually monœcious, sometimes perfect. *Calyx* none. *Corolla* (see figs. 1 & 3.) when present, (it is wanting in some species,) of 2 oblong, pointed, opposite, equal petals (*braeteas* of some authors).—*Sterile Flower* (fig. 1). *Filament* 1, hair-like, gradually elongated. *Anthers* terminal, kidney-shaped, 1-celled, opening by a transverse suture.—*Fertile Flower* (figs. 2 and 3). *Germen* (see fig. 2.) superior, 4-lobed. *Styles* hair-like, spreading, with pointed *stigmas*. *Capsule* (see fig. 3.) 4-lobed, lobes laterally compressed, indehiscent, with four 1-seeded cells.

The pointed *stigmas;* and the solitary, 4-lobed, indehiscent *capsule*, of four 1-seeded cells; will distinguish this from other genera in the same class and order.

Three species British.

CALLI'TRICHE VERNA. Spring Water-Starwort. Star-headed Water Chickweed. Water Fennel Vernal Stargrass.

SPEC. CHAR. Peduncles very short, with 2 bracteas (? petals) at their base. Fruit apparently sessile, regularly 4-angled, each lobe bluntly keeled at the back.

Fl. Dan. t. 129.—Linn. Sp. Pl. p. 6.—Willd. Sp. Pl. v. i. pt. 1. p. 28.—Sm. Engl. Fl. v. i. p. 10.—With. (7th ed.) v. ii. p. 6.—Lindl. Syn. p. 243.—Hook. Brit. Fl. p. 384.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 704.—Macr. Man. Brit. Bot. p. 80.—Lightf. Fl. Scot. v. i. p. 70.—Abbot's Fl. Bedf. p. 1.—Davies' Welsh Bot. p. 2.—Purt. Midl. Fl. v. i. p. 49.—Johnst. Fl. Berw. v. i. p. 3.—Winch's Fl. of Northumb. and Durh. p. 58.—Walker's Fl. of Oxf. p. 2.—Bab. Fl. Bath. p. 17.; Prim. Flor. Sarn. p. 36.—Dick. Fl. Abred. p. 53.—Irv. Lond. Fl. p. 200.—Luxf. Reig. Fl. p. 78.—Cow. Fl. Guide, p. 25.—Mack. Fl. Hibern. p. 239.—*Callitriche aquatica*, Engl. Bot. t. 722.—Hook. Fl. Lond. t. 127.—Huds. Fl. Angl. (2nd ed.) p. 439, *α* & *β*.—Sm. Fl. Brit. v. i. p. 8, *α* & *β*.—Sibth. Fl. Oxon. p. 2, *α* & *β*.—Relh. Fl. Cant. (3rd ed.) p. 4, *α* & *β*.—Hook. Fl. Scot. p. 259.—Grev. Fl. Edin. p. 188.—Fl. Devon. pp. 145 & 141.—Mack. Catal. Pl. of Irel. p. 7.—*Callitriche pallens*, Gray's Nat. Arr. v. ii. p. 555.—*Stellaria*, Ray's Syn. p. 289.; and *Stellaria minor et repens*, ibid. p. 289.

LOCALITIES.—In ditches, ponds, and slow streams; common.

Annual.—Flowers in April and May.

Root of very long slender fibres. *Stems* slender, thread-shaped, branched, minutely pustulate, varying in length according to their situation in deep or shallow water. *Leaves* opposite, connate, very

Fig. 1. A Staminiferous Flower.—Fig. 2. A Pistilliferous one.—Fig. 3. A Capsule, divided transversely.—*All magnified.*

* From *kallos*, Gr. *beautiful;* and *thrix*, Gr. *hair*. WITHERING.

† See folio 83, note †. ‡ See folio 49, note †.

variable both in shape and size; simple, entire, minutely dotted; the *uppermost ones* crowded, stalked, elliptic, or inversely egg-shaped, 3-nerved above the base, spreading in a star-like form at the summit of each branch, and floating on the surface of the water; *lower ones* distant, spatulate, sometimes strap-shaped and single-ribbed. *Flowers* axillary, solitary, sessile, usually separated, minute, and inconspicuous; *staminiferous ones* consisting of a single stamen, with a yellow anther, on a slender white filament; and 2 minute *petals* or *bracteas*, which are thick, flat, and bowed inwards at the edge like a crescent (see fig. 1.); *pistilliferous ones* of 2 similar *petals* or *bracteas*; 2 hair-like, reflexed *styles*; and a roundish, 4-lobed, 4-celled *capsule*.

Dr. MACREIGHT, in his very excellent and useful little book, the "Manual of British Botany," has described five varieties of this species; viz.

"*α. vulgaris.* (D. C.) All the leaves elongato-obovate. *C. verna* (Fl. Dan.)
"*β. intermedia.* (D. C.) Lower leaves linear, obtuse or emarginate; the upper ones oval. *C. dubia.* (THUILLIER.)
"*γ. stellata.* (HOP.) All the leaves oval. Stems short. *C. æstivalis.* (THUIL.)
"*δ. cæspitosa.* (SCHULT.) All the leaves oval, rigid, and small. Stem short, stellato-patent. In moist scarcely inundated places.
"*ε. tenuifolia.* (PERS.) All the leaves linear; upper ones 3-nerved."

The 2 crescent-shaped petals or bracteas (figs. 1 & 3); and the sessile, regularly 4-angled, bluntly keeled fruit; will distinguish this, in all its varieties, from the two other British species.

"These plants," says Professor BURNETT, "do not possess any notable properties; they are innoxious, and perhaps slightly nutritious, as they are fed on by wild-ducks; and, growing abundantly in damp places, are said, by the large quantities of carbonic acid and carburetted hydrogen they absorb, to tend much towards purifying the air of marshes, and rendering that in water respirable by fish and other aquatic animals."

The *essential character* of the *Natural Order* CALLITRICHINEÆ, of which the present genus is the only known example, is thus given by Professor LINDLEY.

"*Flowers* usually unisexual, monœcious, naked, with 2 fistular coloured bracteæ. *Stamen* single; *filament* filiforme, furrowed along the middle; *anther* reniform, 1-celled, 2-valved; the valves opening fore and aft. *Ovarium* solitary, 4-cornered, 4-celled; *ovules* solitary, peltate; *styles* 2, right and left, subulate; *stigmas* simple points. *Fruit* 4-celled, 4-seeded, indehiscent. *Seeds* peltate; *embryo* inverted in the axis of fleshy *albumen; radicle* very long, curved, superior; *cotyledons* very short. Small aquatic *herbaceous* plants, with opposite, simple, entire *leaves*. *Flowers* axillary, solitary, very minute."

Dr. LINDLEY remarks, "the affinity of this order to other Dicotyledones appears to be of precisely the same nature as that borne by Lemna to Monocotyledones. They each exhibit the lowest degree of organization known in their respective classes."

This very distinguished Botanist fully assents to Dr. BROWN's opinion of its affinity with *Halorageæ*, (see folio 376, a.) although he does not place it in the same order. See *Introd. to Nat. Syst. of Bot.* p. 176.



Mathews del & Sc

Helianthemum Vulgare. *Common Rock-rose.*

Pub.d by W. Baxter, Jame Garden Oxford 1842

HELIA'NTHEMUM*.

Linnean Class and Order. POLYA'NDRIA†, MONOGY'NIA.

Natural Order. CISTI'NEÆ, D. C. Prod. v. i. p. 263.—Lindl. Syn. p. 36.; Introd. to Nat. Syst. of Bot. p. 151.—Loud. Hort. Brit. p. 500.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 297.—Mack. Fl. Hibern. p. 33.—Hook. Brit. Fl. (4th edit.) p. 398.—CISTA'CEÆ, Loud. Arb. et Frutic. Brit. p. 316.—CISTEÆ, Rich. by Macgilliv. p. 503.—CISTI, Juss. Gen. Pl. p. 294.—Sm. Gram. of Bot. p. 156.—ROSALES; subord. RHŒADOSÆ; sect. CISTINÆ; subsect. CISTIANÆ; type, CISTACEÆ; Burn. Outl. of Bot. v. ii. pp. 614, 784, 792, 798, & 801.—ROTACEÆ, *Linn.*

GEN. CHAR. *Calyx* (see fig. 3.) of 3 equal, concave, permanent, partly membranous sepals, with 2 occasional external ones, which are usually smaller than the other 3, very rarely larger. *Corolla* (see fig. 1.) of 5, equal, roundish, spreading petals, with short claws (fig. 2.), much larger than the calyx. *Filaments* (see fig. 3.) numerous, hair-like, shorter than the corolla. *Anthers* small, oval. *Germen* (see fig. 4.) superior, nearly globular. *Style* (see fig. 4.) undivided, various in length and direction. *Stigma* capitate. *Capsule* (see figs. 5 & 6.) angular, invested with the closed permanent calyx (see fig. 5.), of 3 valves, with a narrow dissepiment, or seminiferous nerve in the middle of each (see fig. 6). *Seeds* (see fig. 7.) several, small, angular, smooth. *Albumen* mealy. *Embryo* uncinately-inflexed.

The *calyx* of 3 equal sepals, or of 5, of which the 2 outer ones are smaller; the *corolla* of 5 petals; the capitate *stigma*; and the *capsule* of 3 valves; will distinguish this from other genera in the same class and order.

Five species British.

HELIA'NTHEMUM VULGA'RE. Common Sun-Rose. Common Rock-Rose. Dwarf Cistus. Little Sun-flower.

SPEC. CHAR. Stem somewhat shrubby, procumbent, stipuled. Leaves opposite, egg-shaped or oblong, nearly flat, green above. Racemes terminal, bracteated. Sepals 5, pilose, the inner furrowed and scariose at the margin, the 2 outer spear-shaped, fringed. Style bent at the base, somewhat club-shaped at the apex. Seeds blackish.

HELIANTHEMUM VULGARE, Park. Theatr. Bot. pp. 655 and 656.—Ray's Syn. p. 341.—Wills. Syn. p. 224.—Gært. Fruct. v. i. p. 371. t. 76.—Gray's Nat. Arr. v. ii. p. 662.—Lindl. Syn. p. 37.—Hook. Brit. Fl. p. 258.—Loud. Arb. et Frut. Brit. p. 343.—Don's Gen. Syst. of Gard. and Bot. v. i. p. 311.—Macr. Man. Brit. Bot. p. 24.—Grev. Fl. Edin. p. 121.—Bab. Fl. Bath. p. 6.—Dick. Fl. Abred. p. 41.—Irv. Lond. Fl. p. 182.—Luxf. Reig. Fl. p. 46.—Mack. Fl. Hibern. p. 34.—*Helianthemum anglicum luteum vel album*, Johnson's Gerarde, p. 1282.—*Cistus Helianthemum*, E. B. t. 1321.—Curt. Fl. Lond. t. .—Fl. Dan. t. 101.—Linn. Sp. Pl. p. 744.—Huds. Fl. Angl. (2nd ed.) p. 233.—Willd. Sp. Pl. v. ii. pt. II. p. 1209.—Sm. Fl. Brit. v. ii. p. 575.; Engl. Fl. v. iii. p. 26.—With. (7th ed.) v. iii.

Fig. 1. Corolla.—Fig. 2. A Petal.—Fig. 3. Calyx and Stamens.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. Capsule.—Fig. 6. Same opened.—Fig. 7. A Seed, *magnified.*

* From *helios*, Gr. *the sun*; and *anthos*, Gr. a *flower*; because the flowers open with the rising of the sun in the morning, and the petals fall off with the setting of the sun in the evening. DON. † See folio 51, note †.

p. 660.—Lightf. Fl. Scot. v. i. p. 281.—Sibth. Fl. Oxon. p. 167.—Abh. Fl. Bedf. p. 117.—Thomp. Pl. Berw. p. 56.—Davies' Welsh. Bot. p. 54.—Purt. Midl. Fl. v. i. p. 253.—Relh. Fl. Cant. (3rd. ed.) p. 216.—Hook. Fl. Scot. p. 170.—Fl. Dev. pp. 91 & 186.—Johnst. Fl. Berw. v. i. p. 120.—Winch's Fl. of Northumberl. and Durh. p. 36.—Walker's Fl. of Oxf. p. 151.—Perry's Pl. Varvic. Selectæ, p. 45.—Cow. Fl. Guide, p. 27.—Mack. Catal. Pl. Irel. p. 52.

LOCALITIES.—On dry and hilly pastures, on a chalky or gravelly soil; not uncommon.

Small Shrub.—Flowers from May to September.

Root woody. *Stems* several, somewhat shrubby, procumbent, or slightly ascending, round, smooth below, more or less hairy above, often reddish, leafy. *Leaves* simple, opposite, on very short stalks, egg-shaped, or elliptic oblong, entire, green on the upper surface, and somewhat hairy; paler and downy on the under, the margins scarcely revolute. *Stipulas* 4 at each joint of the stem, spear-shaped, fringed. *Flowers* yellow, in simple, terminal, loose racemes, rather large and showy, expanding only in sunshine, and scarcely lasting a day. *Bracteas* spear-shaped, smooth, fringed, one at the base of each pedicel. *Pedicels (partial flower-stalks)* slender, hoary, various in direction, more reflexed as the fruit advances to maturity. *Calyx* of 5 sepals, the 3 inner of which are egg-shaped and bluntish, with strong, green, bristly ribs, connected by a smooth, or scarcely at all downy, somewhat transparent, dotted membrane; the two outer very small, spear-shaped, pointed, green, smooth, except their margins, which are fringed with numerous bristly hairs. *Petals* nearly circular, entire, yellow, with sometimes a fulvous base. *Stamens* numerous, irritable; when touched they retire from the style, and lie down in a spreading form on the petals; but this can be seen only in calm warm weather, and when the flowers have not been ruffled by insects, or otherwise disturbed. *Germen* globose, downy. *Capsule* downy, with very narrow dissepiments, or imperfect partitions. *Seeds* several, rather large, egg-shaped, pointed, of a reddish-brown, or blackish colour.

This sometimes, though very rarely, occurs with white flowers; and also, occasionally, with rose-coloured ones. In gardens the flowers are sometimes double. Sir W. J. HOOKER, and Dr. WITHERING, consider *Cistus tomentosus* and *Cistus surrejanus* of SMITH, as varieties of the present species. The former differs in the *leaves, flower-stalks, stipulas,* and *calyx,* being much more hoary and downy than in the true species; the latter in the *petals* being narrow, spear-shaped, and jagged.

Mr. CURTIS observes, that "though the present species cannot vie with those which are the produce of warmer climates, yet it is one of the most ornamental of our native plants, and admirably well calculated to decorate a rock or dry bank, especially if its several varieties, with white, rose, and lemon-coloured flowers be intermixed. It is hardy, easily propagated either by seeds or cuttings, and continues, for the greatest part of the Summer, to put forth daily a multitude of new blossoms."

The *Natural Order* CISTI'NEÆ, of which the present genus is the only British example, is composed of dicotyledonous *shrubs* or *herbaceous plants* with usually entire, opposite or alternate, stipulate or exstipulate *leaves*. The *calyx* consists of 5 unequal sepals, the 3 inner of which are largest, and twisted in the bud. The *corolla* is 5-petalled, and twisted in the bud. The *stamens* numerous. The *ovary* distinct, and 1- or many-celled, with a thread-shaped *style*, and simple *stigma*. The *capsule* is of from 3 to 5, rarely 10 valves. And the *seeds* are numerous; with a spiral or curved embryo, in a mealy *albumen*.



Malaxis paludosa Bog Orchis V.

Pub^d by W. Baxter, Botanic Garden, Oxford 1840

MALA'XIS*.

Linnean Class and Order. GYNA'NDRIA†, MONA'NDRIA.

Natural Order. ORCHI'DEÆ, *Linn.*—Juss. Gen. Pl. p. 64.—Sm. Gram. of Bot. p. 81.; Engl. Fl. v. iv. p. 3.—Lindl. Syn. p. 256; Introd. to Nat. Syst. of Bot. p. 262.—Rich. by Macgilliv. p. 412.—Loud. Hort. Brit. p. 536.—Mack. Fl. Hibern. p. 274.—Macr. Man. Brit. Bot. p. 224.—Hook. Brit. Fl. (4th ed.) p. 425.—PALMARES; order, MUSALES; sect. ORCHIDINÆ; type, ORCHIDACEÆ; Burn. Outl. of Bot. v. i. pp. 391, 437, 458, & 461.

GEN. CHAR. *Perianthium (calyx and corolla)* (figs. 1 & 2.) superior; sepals (fig. 1, c, c, c.) 3, herbaceous, egg-shaped, spreading, permanent. *Petals* (fig. 1, *d, d.*) 2, herbaceous, reflexed, smaller than the sepals. *Lip (nectary)* (fig. 1, *e.*) uppermost, undivided, without a spur, much smaller than the sepals, and similar in size and shape to the petals. *Anther* (see fig. 3, c.) terminal, deciduous, of two close cells, depositing the four waxy *pollen-masses* upon the stigma. *Germen* (fig. 3, *a.*) inversely egg-shaped, angular. *Style (column)* (see fig. 4.) very short, convex at the back, flat or concave in front. *Stigma* close beneath the anther in front, obsolete. *Capsule* elliptic-oblong, with 3 or 6 ribs. *Seeds* numerous, minute, each with a lax chaffy *tunic*.

The spreading *sepals;* the reflexed *petals*, smaller than the sepals; the spurless, entire, reversed *lip;* the very short *column;* and the two pairs of waxy *pollen-masses;* will distinguish this from other genera in the same class and order.

One species British.

MALA'XIS PALUDO'SA. Marsh Malaxis. Marsh Bog-orchis. Marsh Twayblade. Marsh Ophrys.

SPEC. CHAR. Stalk with 5 angles. Leaves about 4, oval, very concave, papillose at the tip. Lip entire, concave, acute, half the length of the sepals.

Swartz in Stockh. Trans. for 1789, p. 127. t. 6. f. 2. Engl. Bot. t. 72.—Hook. Fl. Lond. t. 197.—Willd. Sp. Pl. v. iv. pt. 1. p. 91.—Sm. Fl. Brit. v. iii. p. 940.; Engl. Fl. v. iv. p. 47.—With. (7th ed.) v. ii. p. 44.—Gray's Nat. Arr. v. ii. p. 214.—Lind. Syn. p. 263.—Hook. Br. Fl. p. 379.—Macr. Man. Brit. Bot. p. 229.—Brown in Ait. Hort. Kew. (2nd ed.) vol. v. p. 208.—Relh. Fl. Cant. (3rd. ed.) p. 366.—Hook. Fl. Scot. p. 255.—Rev. G. E. Smith's Pl. of S. Kent, p. 59.—Winch's Fl. of North. & Durh. p. 57.—Irv. Lond. Fl. p. 113.—Mack. Cat. Pl. of Irel. p. 77.; Fl. Hib. p. 281. — *O'phrys paludósa*, Linn. Sp. Pl. p. 1341.—Fl. Dan. t. 1234.—Rose's Elem. App. p. 450. t. 2. f. 3.—Huds. Fl. Angl. (2nd ed.) p. 389.—With. (2nd ed.) v. ii. p. 989.—Lightf. Fl. Scot. v. i. p. 525.—Abb. Fl. Bedf. p. 196.—*O. palústris*, Huds. Fl. Angl. (1st ed.) p. 339.—*Ophris bifolia palustris nostras*, Pluk. Phyt. t. 247. f. 2.; *O. bifolia minor palustris*, Pluk. Almag. 270.—*Orchis minima bulbosa*, D. Preston. Ray's Hist. v. iii. p. 587.; DILL. in Ray's Syn. p. 378.—*Bifolium palustre*, Park. Theatr. Bot. p. 505.—Ray's Syn. 2nd ed. p. 243.; 3rd ed. p. 385.

Fig. 1. Front view of a Flower; *a.* bractea; *b.* germen; *c. c. c.* sepals; *b. b.* petals; *e.* lip.—Fig. 2. Back view of a Flower.—Fig. 3. Side view of ditto, with the sepals and petals removed; *a.* germen; *b.* lip. before the flower is expanded; *c.* anther.—Fig. 4. Back view of the Column and Anther.—Fig. 5. The two pairs of Pollen-masses.—*All more or less magnified.*—Figs. 2, 3, 4, & 5, reduced from Professor LINDLEY'S magnificent work, intitled "Illustrations of Orchidaceous Plants," from drawings by FRANCIS BAUER, Esq. F. R. S., &c. &c.

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* From *malakis*, Gr. *softness;* from the tender nature of the plant.

† See folio 8, note †.

Localities.—In spongy bogs in many places, but apt to be overlooked on account of its small size.—*Bedfordsh.* Potton Marshes: Rev. C. Abbot.—*Cambridgesh.* Gamlingay Bogs: Rev. R. Relhan. On Hinton Moor: B. G.—*Durham;* In bogs on Eglestone Moor: Teesdale. On moors south of Wolsingham: Mr. Backhouse.—*Hants;* Bere Forest, near Wickham: Dr. Pulteney. Walton Heath, East Leigh, near Emsworth: Mr. Barton.—*Herts;* On the low wet grounds between Hatfield and St. Albans: Parkinson.—*Kent;* Divers places in Romney Marsh: Parkinson. At Hurst Hill, Tunbridge Wells: Mr. Dubois.—*Lancash.* Between Rusland Chepel and Thwaite Moss, in Furness Fells: Mr. Jackson.—*Norfolk;* Felthorpe Bog near Norwich: Rev. H. Bryant. On Cawston Heath: Mr. Crowe. Belton Common; Ashby Warren, abundantly: *Hist. Yarm.*—*Northumberland;* On the Muckle Moss near Thorngrafton: N. J. Winch, Esq. in N. B. G.—*Staffordsh.* Norton Bog; and Cannock Wood: Mr. Bagot.—*Sussex;* Near the Tilgate Ponds; Chiltington Moors; and Hurst Hill, near Tunbridge Wells: *Bot Sus.* N. B. G.—*Yorksh.* West of Middleton: Mr. Robson.—WALES. *Caernarvonsh.* In a field where a wood has formerly stood, called Coed y Tŵ Dŵ, near Llanberris: Mr. Griffith.—SCOTLAND. *Fifesh.* Marshes near St. Andrew's: Lightfoot, *Fl. Scot.*—*Forfarsh.* In the low parts of the county; and on the summits of the Clova Mountains: Mr. Don, in *Agr. of Angus.* Glen Clova: W. Brands, in N. B. G. A mile or two above the kirk of Clova, on the opposite side of the river: Mr. Watson, in N. B. G.—*Kinross-shire;* Rills near the foot of Dunglow: Mr. D. Stewart.—*Perthsh.* A little to the East of Ben Vorlich, and a little above the house of Ardvorlich: Mr. Arnott.—*Ross-shire;* South side of a stream above Castle Leod; and near Freevater: N. B. G.—*Sutherland;* Behind Oikel Inn; road-side above Invershin; and at Ben Loyal: N. B. G.—*Wigtonsh.* Mull of Galloway: N. J. Winch, Esq.—IRELAND. In a marshy spot above Powerscourt Waterfall, and at Tittour, county of Wicklow, as well as in the southern and northern counties, but never in great quantities: Mr. Mackay.

Perennial.—Flowers from July to September.

Root bulbous, curved, often stalked, and throwing out radicles from the base. *Scape (stalk)* central, from 2 to 5 inches high, upright, angular, smooth, mostly naked. *Leaves* 3 or 4, egg-shaped, or inversely egg-shaped, various in length, very concave, rather glaucous, almost upright, blunt; their apex rough with little bulbous *gemmæ*. *Flowers* in a slender upright spike, or raceme; very small, pale green, reversed, the upper sepal (fig. 1, *c.*) being turned downward, the two others (fig. 1, *c, c.*), with the small entire *lip* (fig. 1, *c.*), upward; *petals* (fig. 1, *d, d.*) turned back (see fig. 2). *Capsules* nearly globular. *Bracteas* (see fig. 1, *a.*) spear-shaped, small, membranous, about as long as the pedicels.

This very curious and interesting little plant is indigenous to Russia, Sweden, and Germany, as well as Britain; and is the smallest of all our native *Orchideæ*. It has been clearly ascertained, by the Rev. Professor Henslow, of Cambridge, that the minute papillæ at the apex of the leaves, are little bulbous *gemmæ*, and as such he has described and figured them in Loudon's *Magazine of Natural History*, v. i. pp. 441 & 442. This fact appears to have been suspected previously, in 1824, by Mr. W. Wilson, who further finds an *hybernaculum* formed in the Autumn among the decayed leaves. Thus independant of *seeds*, this curious little plant has one mode of perpetuating itself, and another of increase. See Hooker's *Brit. Fl.*

The Drawing for the accompanying Plate was made from the largest out of several specimens which were kindly communicated to me by Mr. Barton, of East Leigh, near Emsworth, Hants, July 19, 1840.



Cicuta Virosa. Cowbane.

Pub.d by W.Baxter Botanic Gar.n Oxford

CICU'TA *.

Linnean Class and Order. PENTA'NDRIA †, DIGY'NIA.

Natural Order. UMBELLI'FERÆ ‡, Juss. Gen. Pl. p. 218.—Sm. Gram. of Bot. p. 132.—Lindl. Syn. p. 111; Introd. to Nat. Syst. of Bot. p. 4.—Rich. by Macgilliv. p. 463.—Loud. Hort. Brit. p. 517.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 235.—Mack. Fl. Hibern. p. 113.—Hook. Brit. Fl. (4th ed.) p. 408.—UMBELLATÆ, *Linn.*—ROSALES; sect. ANGELICINÆ; type, ANGELICACEÆ; subtype, ANGELICIDÆ; Burn. Outl. of Bot. v. ii. pp. 614, 700, 773, and 774.

GEN. CHAR. *Flowers* (see fig. 2.) uniform, perfect, and nearly regular. *Calyx* (see fig. 1.) a 5-toothed, somewhat leafy margin. *Corolla* (fig. 2.) of 5, inversely heart-shaped petals, with an inflexed point. *Filaments* (see fig. 2.) 5, thread-shaped, spreading, about as long as the corolla. *Anthers* roundish. *Germen* (see fig. 1.) inferior, hemispherical, compressed, ribbed. *Styles* (see figs. 1 & 3.) 2, thread-shaped, short, upright, scarcely tumid at the base; subsequently elongated, spreading, and permanent. *Stigmas* blunt, almost capitate. *Floral Receptacle* depressed, withering. *Fruit* (see fig. 3.) roundish, contracted at the sides, double. *Carpels* with 5 flattish, equal ribs, of which the 2 lateral ones form a margin. *Channels (interstices)* with single *vittæ*, which fills them, even in a dried state, but then less elevated than the ribs. *Commissure (juncture* or *point of union)* furnished with 2 *vittæ; vittæ* under a loose membrane. *Carpophore (receptacle of the fruit)* 2-parted. Transverse section of *seed* nearly round. *Universal Involucrum* of few leaves, or wanting; *partial* of many leaves. *Flowers* white.

The roundish *fruit*, compressed at the sides, of 2, almost globose *carpels*, with 5 broad, flattish, equal *ribs*, and evident single *vittæ* in the *interstices;* the 5-toothed, leafy *calyx;* and the inversely heart-shaped petals, with an inflexed point; will distinguish this from other genera in the same class and order.

One species British.

CICU'TA VIRO'SA. Poisonous Cowbane. Water Cowbane, Long-leaved Watercress. Long-leaved Water Hemlock.

SPEC. CHAR. Trunk of root hollow, divided into cells by transverse dissepiments; fibres disposed in whorled fascicles. Leaves twice ternate; segments spear-shaped, serrated. Umbels opposite the leaves, and terminal.

Engl. Bot. t. 479.—Fl. Dan. t. 208.—Woodv. Med. Bot. Suppl. t. 268.—Linn. Sp. Pl. p. 366.—Huds. Fl. Angl. (2nd edit.) p. 122.—Willd. Sp. Pl. v. i. pt. II p. 1445.—Sm. Fl. Brit. v. i. p. 322.; Engl. Fl. v. ii. p. 62.—With. (7th edit.) v. ii. p. 385.—Gray's Nat. Arr. v. ii. p. 507.—Lindl. Syn. p. 123.—Hook. Brit. Fl. p. 129.—Macr. Man. Brit. Bot. p. 97.—Don's Gen. Syst. of Gard. and Bot. v. iii. p. 275.—Lightf. Fl. Scot. v. i. p. 164.—Abbot's Fl. Bedf. p. 65.—Purt. Midl. Fl. v. ii. p. 718.—Relh. Fl. Cant. (3rd ed.) p. 122.—Thornt. Fam. Herb. p. 315, with

Fig. 1. Germen, Calyx, and Pistils.—Fig. 2. A Flower.—Fig. 3. A Fruit.—Fig. 4. Transverse section of ditto.—*All magnified.*

* So called in reference to the internode or space between the joints; as in a reed or Pan's pipe. WITHERING.

† See folio 48, note †. ‡ See folio 235, *a*.

a figure.—Hook. Fl. Scot. p. 92.—Grev. Fl. Edin. p. 66.—Johnst. Fl. Berw. v. ii. p. 277.—Winch's Fl. of Northumberl. and Durh. p. 19.—Lindl. Fl. Med. p. 34.—Pamp. Pl. of Battersea, p. 6.—Bab. Fl. Bath. p. 21.; Prim. Fl. Sarn. p. 42.—Irv. Lond. Fl. p. 197.—Mack. Catal. Pl. of Irel. p. 29.; Fl. Hibern. p. 124.—*Cicuta aquatica Gesneri*, Bauh. Hist. v. iii. pt. ii. lib. 27. p. 175., with a figure.—*Sium alterum Olusatri facie*, Johns. Ger. p. 256.—Ray's Syn. p. 212.

Localities.—In ditches, and about the margins of river and lakes; not common.—*Bedfordsh.* Oakley Springs: Rev. C. Abbot.—*Cambridgesh.* Fens between Ely and Prickwillow, in a creek over against the Tiled House on Rimney Bank: Rev. R. Relhan. In the river about a mile from Prickwillow Bridge: B. G.—*Cheshire;* Pits near the Little Moor, a mile from Stockport; Pond two miles from Norwich, on the road to Chester; and Brereton Mere: B. G. On the side of a pit, in a field in the township of Pool, near Nantwich: Rev. Mr. Gretton.—*Cumberland;* Keswick; banks of the Irthing at Walton, and Irthington: B. G.—*Herefordsh.* Hereford, on the river-banks, in the Walks: N. B. G.—*Kent;* In running water at Canterbury and Ashford: B. G.—*Lincolnsh.* In the East Fen, chiefly on the edges of the narrow channels, called Rows, which communicate the deeps with each other: B. G.—*Middlesex;* Near Hounslow; Denham; and in one of the ponds near the road at Hayes, three miles from Uxbridge: B. G.—*Norfolk;* In the river above Norwich; Old Walsingham; about Yarmouth, not uncommon; near Filby Broad; and on Hoveton Common: B. G.—*Northumb.* In a bog at Learmouth, near Cornhill: N. B. G.—*Notts:* In Nottingham Park: B. G.—*Shropsh.* In Mr. Slaney's Pool Dam at Hatton; and in a rivulet near Bildwas: B. G. Whiston Marsh: H. Bidwell, Esq. Ellesmere Mere: Rev. A. Bloxam. Oxen Pool, near Shrewsbury, &c.: N. B. G.—*Somersetsh.* In some boggy grounds near Shipton Mallet; and in Buttle Moor, plentifully: B. G. In the Canal near Bathampton: *Fl. Bath.*—*Staffordsh.* Kingston Pool near Stafford: B. G.—*Suffolk;* Near Temple Bridge, Cavenham; banks of the Waveney between Eccles and St. Olave's; Oulton Broad; Oulton Dike; Bradwell; and elsewhere about Yarmouth, not uncommon; side of Fritton Broad: B. G.—*Surrey;* Battersea: B. G.—In *Worcestershire:* N. B. G.—*Yorksh.* By the river at Scroby Bridge near Bawtry; and Newsham Carr near Thirk: B. G. Near Northallerton: M. N. H. v. iii. p. 168.—SCOTLAND. In the counties of *Berwick; Dumbarton; Dumfries; Edinburgh; Fife; Forfar; Lanark; Roxburgh;* and *Sterling;* but not common.—In IRELAND; but rare.

Perennial.—Flowers in July and August.

Root tuberous, hollow, divided into cells by transverse partitions; fibres cylindrical, slender, in whorled fascicles. *Stem* from 2 to 4 feet high, hollow, leafy, branched, furrowed, smooth, often reddish, its lower part divided by transverse partitions into large cells. *Leaves* on long petioles, twice ternate, bright green; *leaflets* spear-shaped, pointed, sharply and deeply serrated, from 1 to 2 inches long, more or less remarkably decurrent; those of the upper leaves very narrow. *Umbels* upright, large, many-rayed, partly terminal, partly opposite to the leaves; *umbellules* of very numerous slender rays. *Partial involucrum* of many small, pointed leaves. *Flowers* white; *petals* small, equal, much inflexed; *anthers* and *styles* reddish. *Fruit* compressed, roundish, smooth, ribbed, almost black.

This plant is a native through all Europe and Siberia, also of North America, between lat. 54°. and 64°. It is one of the rankest of our vegetable poisons, producing effects similar to those of hydrocyanic acid. Numerous instances are recorded of its fatality to the human species, in a treatise upon it by Wepfer, Haller, and others, and in the *Phil. Trans.* by Dr. Watson. Strong emetics, administered as soon as possible, are the most approved antidote. It is a certain and fatal poison to cows; yet goats devour it greedily, and with impunity. Horses and sheep also eat it with safety. In the moist pastures of Sweden it used to occasion a yearly plague amongst horned cattle, until the cause was pointed out, and a preventitive suggested by Linnæus. See *Lachesis Lapponica*, or a Tour in Lapland, translated from the MS. Journal of Linnæus, by Sir J. E. Smith (1811), v. ii. pp. 136—140, where a full account of the plant, and of the disease, is given.

The accompanying Plate is from a very correct and beautiful Drawing, kindly presented to me by Dawson Turner, Esq. F. R. S., &c. of Yarmouth; to whom I am also indebted for specimens of the plant. I have also been favoured with fine specimens of it from the Rev. Mr. Gretton, of Nantwich, Cheshire.



Rhynchospora alba. White Beak-rush. 4

Mathews Del. & Sc. Pub.d by W. Baxter Botanic Garden Oxford. 1840.

RHYNCHO'SPORA *.

Linnean Class and Order. TRIA'NDRIA †, MONOGY'NIA.

Natural Order. CYPERA'CEÆ, *Juss.*—Lindl. Syn. p. 278.; Introd. to Nat. Syst. of Bot. p. 304.—Rich. by Macgilliv. p. 392.—Loud. Hort. Brit. p. 541.—Mack. Fl. Hibern. p. 318.—Hook. Brit. Fl. (4th ed.) p. 427.—CYPEROIDEÆ, Juss. Gen. Pl. p. 26.—Sm. Gr. of Bot. p. 68.—CYPERALES; sect. CYPERINÆ; type, SCIRPACEÆ; Burn. Outl. of Bot. v. i. pp. 354 & 357.—CALAMARIÆ, *Linn.*

GEN. CHAR. *Spikelets* in corymbose stalked heads, terminal and axillary; each *spikelet* (see fig. 1.) of 2, or few flowers, the *glumes (bracteæ,* LINDL.) (see fig. 2.) 1-valved, imbricated on all sides, concave, pointed, the lower ones gradually smaller and empty. *Bristles (Perianth* of BROWN) (see figs. 3 & 4.) several, toothed (see fig. 5.), shorter than the glume beneath. *Filaments* (see fig. 3.) 1, 2, or 3. *Anthers* strap-shaped, upright. *Germen* (see figs. 4 and 6.) superior, roundish, small. *Style* (see figs. 4 & 6.) awl-shaped, bifid, dilated at the base, permanent, forming a hard, conical, compressed, pale beak to the convex, otherwise obtuse, *Seed.*

The few-flowered *spikelets;* the 1-valved *glumes,* imbricated on all sides, the lower ones smaller and empty; the *perianth* of several, toothed bristles; and the *seed* beaked with the dilated, hardened, permanent base of the *style;* will distinguish this from other genera with inferior, glumaceous flowers, in the same class and order.

Two species British.

RHYNCHO'SPORA ALBA. White Beak-rush. White-headed Bog-rush.

SPEC. CHAR. Spikelets in a compact corymb, shorter than the outer bracteas. Stamens 2. Bristles with reflexed teeth. Leaves narrow-strap-shaped.

Vahl. Enum. Pl. v. ii. p. 236.—Sm. Engl. Fl. v. i. p. 52.—With. (7th ed.) v. ii. p. 109.—Gray's Nat. Arr. v. ii. p. 72.—Lindl. Syn., 1st ed. p. 279.; 2nd ed. pp. 279 and 332.—Hook. Brit. Fl. p. 20.—Maer. Man. Brit. Bot. p. 248.—Winch's Fl. of Northumbl. and Durh. p. 3.—Walker's Fl. of Oxf. p. 12.—Loud. Mag. Nat. Hist. v. viii. p. 676.—Murr. North. Fl. p. 27.—Irv. Lond. Fl. p. 88.—Mack. Fl. Hibern. p. 319.—*Schœnus albus,* Linn. Sp. Pl. p. 65.—Engl. Bot. t. 985.—Huds. Fl. Angl. (2nd edit.) p. 16. excl. var. β.—Willd. Sp. Pl. v. i. pt. 1. p. 267.—Sm. Fl. Brit. v. i. p. 46. excl. var. β.—Lightf. Fl. Scot. v. i. p. 87.—Abbot's Fl. Bedf. p. 10.—Purt. Midl. Fl. v. i. p. 62.—Relh. Fl. Cant. (3rd ed.) p. 21.—Hook. Fl. Scot. p. 16.—Fl. Devon. pp. 6 & 115.—Perry's Pl. Varvic. Selectæ, p. 5.—Mack. Catal. Pl. of Irel. p. 10.—*Cyperus minor palustris hirsutus, paniculis albis paleaceis,* Ray's Syn. p. 427.—*Gramen junceum leucanthemum,* Johnson's Gerarde, lib. i. chap. 22. n. 7. p. 30*.—*Gramen cyperoides palustre, leucanthemum.* Scheuchz. Agr. p. 503. t. 11. f. 11.

Fig. 1. A Spikelet, and Bractea.—Fig. 2. A Glume.—Fig. 3. A single Floret.—Fig 4. Bristles, Germen, Style, & Stigmas.—Fig. 5. A Bristle, highly magnified.—Fig. 6. Germen, Style, and Stigmas.—Fig. 7. A Seed.—*All magnified.*

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* From *rygchos,* Gr. a *beak;* and *spora,* Gr. a *seed;* the permanent base of the style forming a beak to the seed. WITHERING.

Sir W. J. HOOKER remarks, that this is very different in habit from *Eleocharis,* but too near in generic character.

† See folio 56, note †.

Localities.—On turfy bogs, and in wet pastures; not common.—*Berks;* Bullmarsh Heath; and bog in Windsor Great Park.—*Beds;* Ampthill Moor; Potton; and Aspley.—*Bucks;* East Burnham Common; and Iver Heath.—*Cambridgesh.* Boggy ground near Gamlingay Park.—*Cheshire;* On almost all the bogs.—*Cornwall;* On the heath by Kynance Cove; and between St. Michael's and Gorse Moor.—*Cumbl.* Side of the river Gelt; by Crummock-water; bogs at the foot of Hellvellyn, &c. and Ullock Moss.—*Devon;* Bovey Heathfield; Woodbury Hill; and Shute Common.—*Dorset;* Common on the bogs of Wareham, Canford, and Poole heaths.—*Durham;* On Beamish Moor.—*Hants;* Common about Southampton.—*Kent;* On all the bogs on Ashdown and Waterdown Forests, and on the bog near Mr. Sloper's.—*Lancash.* On all the moors of this county.—*Leicestersh.* Between Beacon Hill, and the Outwoods on Charley Forest.—*Norfolk;* Belton Bog, in plenty. Felthorp Bogs; and near Heydon.—*Northumbl.* Prestwick Car; and on the Muckle Moss.—*Salop;* Bomere Pool; and Twyford Vownog, near West-felton.—In *Somersetshire.*—*Staffordsh.* In Chartley Moss.—*Suffolk;* Belton.—*Surrey;* Bagshot Heath; between Chobham and Shrubs-hill; in a large bog between Wickham and Croydon; and on Shirley and Esher Commons.—*Sussex;* On the great bogs on Ashdown Forest; Chailey Common; Tilgate and St. Leonard's Forests; Aberley Wild Brooks, and other bogs near Washington Common; also in Waterdown Forest.—*Warwicksh.* On Birmingham Heath; near Packington; and in a bog below Coleshill Pool.—*Westmoreland;* Common in this county.—*Yorksh.* Near Richmond; Lakeby Car; Terrington Car; and Black Moor, between Leeds and Harrowgate.—WALES. *Caernarvonsh.* Bog west of Dolbadern Castle, near Llanberris; peat-bogs among the hills, not rare.—*Denbighsh.* By the side of the old road from Capel Cerig to Llanrcost, in an enclosure above Pencraig House.—*Flintsh.* Boggy fields between Plasnewydd in Rhyl and Rhyd Marsh near Rhyddlan.—*Glamorgansh.* Cromlyn Bog, near Swansea.—SCOTLAND; more or less frequeut in the counties of *Argyle; Dumbarton; Dumfries; Elgin; Forfar; Kirkcudbright; Lanark; Ross;* and *Sutherland.*—IRELAND. In turfy bogs in the southern, western, and northern counties.—See B. G., and N. B. G., for authorities.

Perennial.—Flowers in June, July, and August.

Root moderately creeping. *Culms (stems)* triangular, very slender, from 6 to 12 inches high, smooth, striated. leafy. *Leaves* sheathing at the base, upright, very narrow, strap-shaped, tapering upwards, with a bluntish point, keeled, their margins and keels, as well as those of the bracteas, and also the angles of the flower-stalks, rough. *Spikelets* of *flowers* white or whitish, collected into a kind of corymbose cluster, so as to form a level surface at the top. *Bracteas* variable in length, sometimes much longer than the cluster. In each of the spikelets (see fig. 1.) are two florets, both fertile; with from 8 to 11 *bristles* with reflexed teeth, much longer than the germen (see figs. 4 & 5.), and decidedly placed outside the stamens; from which circumstance Dr. R. Brown considers them as the true *perianth* of the flower. *Filaments* (see fig. 3.) 2, scarcely broader than the bristles. *Anthers* strap-shaped, upright. *Fruit* (fig. 7.) inversely egg-shaped, compressed, distinctly marginal, tapering at the base into a short stalk. *Style* (see figs. 4 & 6.) permanent, thin, pellucid, often greenish, without teeth, dilated at the base, not articulated, nor so broad as the seed, and readily distinguished from it by its colour and texture. See *Hook. Brit. Fl.; Loud. Mag. Nat. Hist.* v. viii. p. 675.; and *Murray's Northern Flora.*

Specimens of this plant were obligingly communicated to me in September, 1839, by Mr. Thompson, of Crow-hall Mill, near Heydon Bridge, Northumberland; and my kind friend, Mr. W. Willis, of St. Austell, Cornwall, has lately favoured me with living specimens of it from Gorse Moor. From one of these specimens the Drawing for the accompanying Plate was made.



Anthyllis Vulneraria Common Kidney-vetch 4

Mathews. Del. & Sc.

Pub.d by W. Baxter Botanic Garden Oxford 1840

ANTHY'LLIS*.

Linnean Class and Order. DIADE'LPHIA†, DECA'NDRIA.

Natural Order. LEGUMINO'SÆ, Juss. Gen. Pl. p. 345.—Sm. Gram. of Bot. p. 174.—Lindl. Syn. p. 75.; Introd. to Nat. Syst. of Bot. p. 87.—Rich. by Macgilliv. p. 532.—Sm. Engl. Fl. v. iii. p. 259.—Loud. Hort. Brit. p. 509.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 91.—Mack. Fl. Hibern. p. 73.—Hook. Brit. Fl. (4th edit.) p. 404.—LEGUMINA'CEÆ, Loud. Arb. Brit. p. 561.—PAPILIONA'CEÆ‡, *Linn.*—ROSALES; sect. CICERINÆ; subsect. LOTIANÆ; type, LOTACEÆ; subtype, LOTIDÆ; Burn. Outl. of Bot. pp. 614, 638, 642, & 644.

GEN. CHAR. *Calyx* (fig. 1.) of 1 sepal, tubular, egg-oblong, inflated, pubescent, with 5 small, unequal, marginal teeth, permanent. *Corolla* (see fig. 2.) papilionaceous, of 5 petals, with strap-shaped claws the length of the calyx; standard (fig. 3.) longest, reflexed at the sides; wings (fig. 4.) 2, oblong, a little shorter than the standard; keel (fig. 5.) of 2 narrower petals, compressed, slightly cohering at the tips. *Filaments* (see fig. 6.) 10, united into one cylinder, finally splitting along the upper edge, their separate extremities curved upwards. *Anthers* small, roundish. *Germen* oblong. *Style* (see fig. 7.) awl-shaped, ascending. *Stigma* blunt. *Legume* (fig. 8.) small, roundish, or oblong, a little turgid, concealed within the enlarged inflated calyx, of 1 cell and 2 valves. *Seeds* (fig. 10.) 1 or 2, roundish-kidney-shaped, smooth.

The inflated, 5-toothed *calyx;* the *corolla* with the standard, wings, and keel, nearly equal in length; and the roundish, 1- to 3-seeded *legume*, inclosed in the permanent calyx; will distinguish this from other genera, with monadelphous stamens, in the same class and order.

One species British.

ANTHY'LLIS VULNERA'RIA. Common Wound-wort. Common Kidney-vetch. Ladies' Finger. Lamb-toe.

SPEC. CHAR. Stems herbaceous. Leaves pinnate, unequal; terminal leaflets much the largest. Heads of Flowers in pairs.

Engl. Bot. t. 104.—Fl. Dan. t 988.—Linn. Sp. Pl. p. 1012.—Huds. Fl. Angl. (2nd ed.) p. 313.—Willd. Sp. Pl. v. iii. pt. ii. p. 1013.—Sm. Fl. Brit. v. ii. p. 759.; Engl. Fl. v. iii. p. 269.—With. (7th ed.) v. iii. p. 834.—Lindl. Syn. p. 78.—Hook. Brit. Fl. p. 320.—Macr. Man. Brit. Bot. p. 52.—Don's Gen. Syst. of Gard. and Bot. v. ii. p. 166.—Lightf. Fl. Scot. v. i. p. 387.—Sibth. Fl. Oxon. p. 221.—Abbot's Fl. Bedf. p. 155.—Thom. Pl. Berw. p. 72.—Davies' Welsh. Bot. p. 69.—Purt. Midl. Fl. v. i. p. 331.—Relh. Fl. Cant. (3rd ed.) p. 290.—Hook. Fl. Scot. p. 213.—Grev. Fl. Edin. p. 155.—Fl. Devon. pp. 120 & 174.—Johnst. Fl. of Berw. v. i. p. 159.—Winch's Fl. of Northumb. and Durh. p. 47.—Walker's Fl. of Oxf. p. 206.—Jacob's West Devon and Cornw. Fl.—Perry's Pl. Varv. Selectæ, p. 61.—Bab. Fl. Bath. p. 12.; Prim. Fl. Saru. p. 24.—Dick. Fl. Abred. p. 48.—Irv. Lond. Fl. p. 179.—Luxf.

Fig. 1. Calyx.—Fig. 2. Calyx and Corolla.—Fig. 3. Standard.—Fig. 4. One of the Wings.—Fig. 5. Keel.—Fig. 6. Stamens and Pistil.—Fig. 7. Germen, Style, and Stigma.—Fig. 8. Legume.—Fig. 9. One of the Valves, with the Seed.—Fig. 10. A Seed.—Fig. 11. The summit of one of the Stamens.—Figs. 3, 4, 5, 6, and 11, *more or less magnified.*

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* From *anthos*, Gr. a *flower;* and *ioulos*, Gr. *down;* in reference to the flowers being usually downy. DON.

† See folio 77, note †. ‡ See folio 117, note ‡.

Reig. Fl. p. 63.—Cow. Fl. Guide, p. 21.—Mack. Catal. Pl. of Irel. p. 66.; Fl. Hib. p. 75.—*Anthyllis leguminosa*, Johnson's Gerarde, p. 1240.—Gray's Nat. Arr. v. ii. p. 597.—*Vulneraria rustica*, Ray's Syn. p. 325.

Localities.—In fields and pastures on a chalky or limestone soil; not uncommon.

Perennial.—Flowers from May to August.

Root woody. *Stems* several, annual, round, clothed more or less with close-pressed hairs, leafy, mostly simple, ascending, about a foot high. *Leaves* somewhat glaucous, those from the root simple, elliptical, on long petioles, soon disappearing; those on the stems alternate, pinnate, with a terminal elliptical leaflet, and from 3 to 6 pairs of smaller, and more spear-shaped ones; all entire; smooth above, hairy or silky underneath and at the margin. *Flowers* numerous, sessile, in two dense, roundish, terminal heads, in close contact. *Bracteas* large, palmate, (fingered), close beneath the heads of flowers. *Calyx* membranous, whitish, hairy, contracted at the mouth, 2-lipped (see fig. 1). *Corolla* usually yellow, rarely white, or red. *Filaments* each with its top distended like a hollow bladder, in form of an inverted pyramid, with the anther fixed in the centre of the base of the pyramid (see fig. 11). *Style* thickest at the curvature, thinner above and below. *Legume* (see fig. 8.) on a short pedicle, nearly orbicular, compressed, veiny, smooth, with a solitary *Seed*.

There is a variety of this plant with a *red*, and another with a *white* or *cream-coloured flower*; the former, which is figured in Dillenius' *Hortus Elthamensis*, t. 320. f. 413., was first observed by Mr. Lhwyd, in Pembrokeshire; and afterwards by Dillenius in the Isle of Anglesea, and in the Isle of Man, in 1726. It has since been found in Cornwall, by Mr. Stackhouse; and in Scotland, by Mr. Winch. The Rev. H. Davies says it is very common along the sandy South-west coast of Anglesea, from whence he transplanted it into his garden, where he observed the flowers to alter their colour considerably, and the plant to grow more luxuriant, the second year; and in the third to become entirely the common plant in every respect. Miller says he never found it to alter from seed, though he had cultivated it for many years. Mr. Borrer finds the *white flowered* variety on the Downs of Sussex; and the Rev. H. Davies found it near the old fortification, on Bryn Gwydryn, Anglesea.

Linnæus observes, that "in Oeland, where the soil is a red calcarious clay, the flowers of *Anthyllis vulneraria* are red; but that in Gothland, where the soil is white, the flowers also are white." In England they are usually yellow; in Portugal red.

It is recommended as an excellent pasturage for sheep; and Mr. Young, in the *Annals of Agriculture*, vol. xv. p. 584, informs us, that it abounds greatly in the best meadows of the Pyrenees; at the same time he says, that its produce is not large. With us the whole plant is dry, and looked upon as astringent; this is owing most probably to its affecting dry calcarious soils; cultivated in a rich soil it would doubtless become more succulent, though it would probably never rival several other leguminous plants.—Cows and goats are said to eat it, and though not in cultivation, Mr. Salisbury considers it well worth attention, as, where it grows naturally, (in calcareous soil,) cows produce better milk, and in greater quantity.

Gesner, it seems, first raised the report of the vulnerary properties of this plant, which perhaps, like other soft and downy applications, may on an emergency staunch the blood of rustic wounds, and give nature and a good constitution time to perfect a cure. Threlkeld tells us, in his *Synopsis Stirpium Hibernicarum*, published in 1726, that it was regularly sold in the markets in Ireland, by the name of *Stanch*, being astringent. A yellow dye may be obtained from it. See *Sm. Eng. Fl.*; *Don's Syst. of Gard. & Bot.*; *Mill. Dict.* by *Martyn*, &c.



Mentha hirsuta Hairy Mint 4

Mathews Del & Sc. Pub.d by W Baxter Botanic Garden Oxford 1818.

ME'NTHA*.

Linnean Class and Order. DIDYNA'MIA†, GYMNOSPE'RMIA‡.

Natural Order. LABIA'TÆ §, Juss. Gen. Pl. p. 110.—Sm. Gram. of Bot. p. 99.; Engl. Fl. v. iii. p. 63.—Bentham, in Bot. Regist. (1829).—Lindl. Syn. p. 196.; Introd. to Nat. Syst. of Bot. p. 239.—Rich. by Macgilliv. p. 439.—Loud. Hort. Brit. p. 528.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 665.—Mack. Fl. Hibern. p. 209.—Hook. Brit. Fl. (4th ed.) p. 415.—VERTICILLATÆ of *Linnæus*.—SYRINGALES; suborder, PRIMULOSÆ; sect. MENTHINÆ; type, MENTHACEÆ or LABIATÆ; subtype, SATURIDÆ; Burn. Outl. of Bot. v. ii. pp. 900, 958, 968, & 972.

GEN. CHAR. *Calyx* (fig. 1.) inferior, tubular, upright, with 5 nearly equal marginal teeth, permanent, its mouth naked, or rarely villous inside. *Corolla* (see figs. 2 & 3.) straight, funnel-shaped, longer than the calyx; limb in 4 deep, slightly spreading, nearly equal segments, the upper one rather the broadest, and nearly entire, or slightly notched. *Filaments* (see fig. 4.) 4, from the throat of the corolla, awl-shaped, nearly equal, straight, distant, longer or shorter than the limb of the corolla. *Anthers* of 2 round lobes. *Germen* (see fig. 5.) superior, 4-lobed. *Style* (see fig. 5.) thread-shaped, straight, generally longer than the corolla. *Stigma* prominent, in 2 sharp, spreading, nearly equal segments. *Seeds* 4, smooth, in the bottom of the calyx, rarely perfected.

The nearly equal *corolla;* the widely spreading, almost equal *stamens;* and the smooth *seeds;* will distinguish this from other genera, with a 5-toothed, nearly regular *calyx*, in the same class and order.

Nine species British, according to BENTHAM, and LINDLEY, Syn. 2nd ed.; Thirteen according to SMITH, and HOOKER, and LINDLEY, Syn. 1st ed.

ME'NTHA HIRSU'TA. Hairy Mint. Water Mint.

SPEC. CHAR. Flowers in heads or whorls. Leaves stalked, egg-shaped, serrated. Calyx clothed with upright hairs. Flower-stalks with recurved ones.

Engl. Bot. t. 447.—Linn. Mant. p. 81.—Hook. Fl. Lond. t. 166.—Huds. Fl. Angl. (1st ed.) p. 223.—Sm. in Tr. Linn. Soc. vol. v. p. 193.—Willd. Sp. Pl. v. iii. pt. 1. p. 78.—Sm. Fl. Brit. v. ii. p. 616.; Engl. Fl. v. iii. p. 78.—With. (7th ed.) v. iii. p. 702.—Lindl. Syn. p. 200.—Hook. Brit. Fl. p. 270.—Lightf. Fl. Scot. v. ii. p. 1104.—Abbot's Fl. Bedf. p. 127.—Thoms. Pl. Berw. p. 59.—Davies' Welsh Bot. p. 57.—Purt. Midl. Fl. v. i. p. 275.—Relh. Fl. Cant. (3rd ed.) p. 235.—Hook. Fl. Scot. p. 180.—Grev. Fl. Edin. p. 129.—Fl. Devon. pp. 97 & 144.—Johnst. Fl. Berw. v. i. p. 129.—Winch's Fl. of Northumbl. and Durh. p. 39.—Walker's Fl. of Oxf. p. 163.—Bab. Fl. Bath. p. 38.—Dick. Fl. Abred. p. 43.—Iv. Lond. Fl. p. 132.—Luxf. Reig. Fl. p. 49.—Cow. Fl. Guide, p. 37.—Mack. Catal. of Pl. of Irel.

Fig. 1. Calyx.—Fig. 2. Calyx and Corolla.—Fig. 3. Corolla.—Fig. 4. Corolla opened vertically to shew the situation of the Stamens.—Fig. 5. Germen, Style, and Stigma.

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* *Mentha* of PLINY. *Minthe*, Gr. of THEOPHRASTUS. From a nymph of that name, daughter of COCYTUS, fabled to have been changed into this herb by PROSERPINE in a fit of jealousy. Some derive it from *mens*, the *mind*. MARTYN.

† See folio 31, note †. ‡ See folio 31, note ‡. § See folio 94, *a*.

p. 54.; Fl. Hibern. p. 213.—*Mentha aquatica*, Huds. Fl. Angl. (2nd ed.) p. 252. α and β.—Sole Menth. Brit. pp. 23 & 25. t. 10 & 11.—Lightf. Fl. Scot. v. i. p. 305.—Sibth. Fl. Oxon. p. 182.—Abbot's Fl. Bedf. p. 127.—Benth. Lab. p. 176.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 718.—Lindl. Syn. (2nd ed.) p. 200.—Maer. Man. Brit. Bot. p. 178.—Purt. Midl. Fl. v. i. p. 275.—*Mentha glomerata*, Stokes Bot. Mat. Med. 616.—Gray's Nat. Arr. v. ii. p. 361.—*Mentha aquatica seu Sisymbrium*, Ray's Syn. p. 233.—Johnson's Gerarde, p. 684.—*Mentha aquatica, sive Sisymbrium hirsutum*, Bauh. Hist. v. iii. pt. II. p. 224, with a figure.—*Sisymbrium hirsutum*, Ray's Syn. p. 233.—*Origanum vulgare*, Fl. Dan. t. 638.

LOCALITIES.—Margins of rivers, wet ditches, and in watery places, very common.

Perennial.—Flowers in August and September.

Root creeping to a great extent, and throwing up many stems. *Stems* from 1 to 3 feet high, generally upright, mostly branched 4-angled, clothed more or less with recurved hairs, and often tinged with purple. *Leaves* opposite, on shortish petioles, egg-shaped, serrated, rounded at the base, or somewhat heart-shaped, hairy. *Bracteas* spear-shaped, hairy. *Flowers* pale purple, in heads or whorls, their stalks densely covered, for the most part, but especially at the summit, with recurved, sometimes close-pressed, white hairs. *Calyx* tubular, furrowed, often purplish, besprinkled with resinous dots, and covered all over with hairs of various lengths, which are curved in a contrary direction from those of the stalks. *Corolla* pale purple, hairy on the outside. *Stamens* varying in length, usually longer than the corolla. *Lower whorls* often stalked.

This is a very variable species, the flowers are sometimes capitate, sometimes whorled, and sometimes the whorls are placed so close on the extremity of the branches as to form a spike. Sir J. E. SMITH, who paid particular attention to this difficult genus, has, in his "English Flora," described eight distinct varieties of this species, in which he includes *Mentha aquatica*, SOLE'S "Menthæ Britannicæ, t. 10 & 11.—*M. palustris*, ibid. t. 6.; *M. paludosa*, ibid. t. 22.—*M. piperita*, Linn. Sp. Pl. p. 805. (not of Hudson, or Engl. Bot.)—*M. Sativa*, Engl. Bot. t. 448.—And two others described in the 3rd edition of "Ray's Synopsis," pp. 232 & 233. According to the observations of Mr. BENTHAM, the upper whorl or head of flowers, at least on the central branch, is always terminal; whereas in *Mentha arvensis*, a species equally common with this, but usually growing in corn-fields, the stem is constantly indeterminate.

Mentha hirsuta is a native of Europe, and Asiatic Russia, and now occurs in almost every part of the globe, but has probably migrated from Europe.

Mr. SOLE says, "tea made of the green leaves of this species is excellent in all nervous and hysterick cases." Mice are said to have a great aversion to the smell of mint; and laying a few green or dry leaves on any articles has been known to preserve them from their depredations.

We are told, in the *Language of Flowers*, that in Holstein, in Germany, the youths carry to funerals a branch of mint as a mark of grief.

Æcidium Menthæ, DC. Hook. Brit. Fl. v. ii. pt. II. p. 369.; and *Uredo Labiatarum*, DC. p. 378, are often parasitic on the stems and leaves of this and some other species.



Juncus Lamprocarpus Shining-fruited jointed Rush 1

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JUNCUS*.

Linnean Class and Order. HEXA'NDRIA†, MONOGY'NIA

Natural Order. JU'NCEÆ‡ *Decand.*—Lindl. Syn. p. 273.; Intr. to Nat. Syst. of Bot. p. 270.—Rich. by Macgilliv. p. 397.—Loud. Hort. Brit. p. 541.—Mack. Fl. Hibern. p. 289.—Hook. Brit. Fl. (4th edit.) p. 424.—JUNCI, Juss. Gen. Pl. p. 43.—Sm. Gram. of Bot. p. 72.—JUNCALES; sect. JUNCINÆ; type, JUNCACEÆ; Burn. Outl. of Bot. v. i. pp. 403 & 416.—TRIPETALOIDEÆ, *Linn.*

GEN. CHAR. *Calyx (Perianthium)* (see fig. 1.) inferior, of 6 oblong, pointed, permanent, glumaceous sepals; 3 of them internal and rather the smallest. *Corolla* none. *Filaments* (see fig. 1.) 6, hair-like, short, inserted into the base of the sepals; three of them sometimes wanting. *Anthers* oblong, upright, of 2 cells, bursting lengthwise. *Germen* (see fig. 2.) superior, triangular. *Style* simple, cylindrical, short, deciduous. *Stigmas* (see fig. 2.) 3, elongated, tapering, downy. *Capsule* (see figs. 3 & 4.) triangular, smooth, invested with the permanent calyx, of 3 cells, and 3 valves, each valve with the seed-bearing dissepiment in the middle. *Seeds* (fig. 5.) numerous, very small, roundish, attached to the inner edge of each dissepiment, often furnished with a partial *tunic. (Leaves smooth, mostly rounded.)*

The inferior *calyx* of 6 glumaceous sepals; and the 3-celled, 3-valved, many-seeded *capsule;* will distinguish this from other genera, without a *corolla*, in the same class and order.

Twenty-three species British.

JUNCUS LAMPOCA'RPUS. Shining-fruited jointed Rush. Lesser-jointed Rush.

SPEC. CHAR. Stem ascending, leafy, compressed. Leaves apparently jointed, compressed. Panicle upright, compound, forked. Inner Sepals bordered. Capsule egg-shaped, 3-sided, coloured, highly polished, longer than the calyx.

Engl. Bot. t. 2143.—Ehrhart's Decades Calamariarum, N°. 126. *fide* SMITH.—Davies in Tr. of Linn. Soc. v. x. p. 13.—Bicheno in Tr. of Linn. Soc. v. xii. p. 325.—Sm. Engl. Fl. v. ii. p. 175.—With. (7th ed.) v. ii. p. 446.—Gray's Nat. Arr. v. ii. p. 167.—Lindl. Syn. p. 275.—Hook. Brit. Fl. p. 162.—Macr. Man. Brit. Bot. p. 241.—Davies' Welsh Bot. p. 34.—Relh. Fl. Cant. (3rd ed.) p. 143.—Purt. Midl. Fl. v. iii. p. 352.—Hook. Fl. Scot. p. 109.—Grev. Fl. Edin. p. 80.—Fl. Devon. pp. 62 & 128.—Johnst. Fl. of Berw. v. i. p. 80.—Winch's Fl. of Northumb. and Durh. p. 23.—Walker's Fl. of Oxf. p. 98.—Bab. Fl. Bath. p. 52.; Prim. Fl. Sarn. p. 97.—Dick. Fl. Abred. p. 33.—Irv. Lond. Fl. p. 103.—Luxf. Reig. Fl. p. 30.—Cow. Fl. Guide, p. 35.—Mack. Catal. Pl. of Irel. p. 33.; Fl. Hibern. p. 291.—*Juncus articulatus*, Linn. Sp. Pl. p. 465, α and β.—Huds. Fl. Angl. (2nd ed.) p. 149, α.—Willd. Sp. Pl. v. ii. pt. 1. p. 211, α.—Sm. Fl. Brit. v. i. p. 379, α.—With. (2nd ed.) v. i. p. 361, α and β.—Leers', p. 88, α. t. 13. f. 6.—Purt. Midl. Fl. v. i. p. 176.—*Juncus compressus*, Relh. Fl. Cant. (1st ed.) p. 142.—Sibth. Fl. Oxon. p. 114.—Abbot's Fl. Bedf. p. 79.—*Juncus foliis articulosis, floribus umbellatis*, Tourn.

Fig. 1. Calyx, Stamens, and Pistil.—Fig. 2. Germen, Style, and Stigma.—Fig 3. Capsule, opening by its 3 valves.—Fig. 4. Transverse section of the same.—Fig. 5. A Seed.—*All more or less magnified.*

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* From *jungo*, to *join;* some of the species being used as a cord to tie things together.—In the language of flowers the *Rush* is the emblem of *docility.*

† See folio 33, note †. ‡ See folio 379, *a.*

Inst. p. 247.—Ray's Syn. p. 432.—*Gramen junceum folio articulato aquaticum*, Bauh. Pin. p. 5.—Scheuchz. Agr. pp. 331 & 333.—*Gramen aquaticum*, Johnson's Gerarde, p. 13.

Localities.—In boggy ground, and watery places; common.

Perennial.—Flowers in July and August.

Root creeping. *Culms (stems)* upright, or ascending, from 12 to 18 inches high, hollow in the upper part, filled with pith in the lower, without internal partitions, slightly compressed, with from 2 to 4, or 5 joints, smooth, leafy, scaly at the base. *Leaves* from 2 to 5 on each stem, alternate, sheathing, 2-ranked, nearly upright, forming an acute angle with the stem, compressed, taper-pointed, smooth, hollow, divided internally by numerous transverse partitions, which give a knotty or jointed appearance, especially to the dried leaves. *Panicle* terminal, upright, compound, its branches strong, elongated, so that the *heads of flowers* are remote, one above another, on each simple branch, with very few at the forks. *Bracteas* leafy, membranous, under the panicle, or its main branches; the *interior* ones smaller, taper-pointed; *innermost*, under each head crowded, egg-shaped, short and filmy. *Sepals* shorter than the capsule, oblong, spear-shaped, pointed; the 3 inner ones with a somewhat more evident white membranous border. *Capsule* very large, egg-shaped, with 3 sharp angles, of a dark chocolate colour, tipped with the sharp-pointed, permanent style, much longer than the calyx, highly polished, as if varnished, giving the panicle a blackish appearance even at a distance. *Seeds* small, not tunicated.

Sir W. J. Hooker considers *Juncus nigritellus* of E. B. Supp. t. 2643, (*J. polycephalus* Sm. Engl. Fl. v. ii. p. 177,) as a variety of this. It differs in the very simple ramification of the panicle, and the few but large heads containing from 5 to 8 spreading flowers, each upon a short stalk. It was found in the Highlands of Scotland by Mr. G. Don.

The species with which *J. lampocarpus* is most likely to be confounded, are *acutiflorus* and *obtusiflorus*, but, when in an advanced state, it is readily distinguished from them both by its large shining dark capsules. While early in flower, the best marks are the more simple panicle, and the somewhat obtuse calyx.

In wet seasons, when the seeds of *lampocarpus* are sparingly perfected, the stems throw out large tufts of leaves, as figured by Casper Bauhen, in his *Prodromus Theatri Botanici*, p. 12.; and by Parkinson, in his *Theatrum Botanicum*, at p. 1270. Mr. Davies remarks, that he never observed these tufts of leaves in either *J. acutiflorus* or *obtusiflorus*. See Sm. Engl. Fl. v. ii.; and Tr. of Linn. Soc. v. x., and v. xii.

It was formerly a custom in England to strew floors with rushes, a custom which still prevails in particular places. At Ambleside, in Westmoreland, the ancient ceremony of strewing the church-floor is still preserved, though there, as in most other churches, the plaited mat has superseded the permanent use of strewn rushes. This ceremony is called Rush-bearing; and the day on which the festival is held is marked as a holiday in the rustic calendar. This custom is also still continued at Rochdale, at Warton, at Deptford, and several other places.





Exacum filiforme. Least Gentianella. ⊙

Mathews Del & Sc. Pub^d by W. Curtis Botanic Garden Oxford 1824

E'XACUM*.

Linnean Class and Order. TETRA'NDRIA †, MONOGY'NIA.

Natural Order. GENTIA'NEÆ, *Dr. R. Brown.*—Lindl. Syn. p. 177.; Introd. to Nat. Syst. of Bot. p. 215.—Rich. by Macgilliv. p. 444.—Loud. Hort. Brit. p. 526.—Don's Gen. Syst. of Gard. and Bot. v. iv. p. 173.—Mack. Fl. Hibern. p. 185.—Hook. Brit. Fl. (4th ed.) p. 413.—GENTIA'NÆ, Juss. Gen. Pl. p. 141.—Sm. Gram. of Bot. p. 106.—SYRINGALES; subord. PRIMULOSÆ; sect. GENTIANINÆ; type, GENTIANACEÆ; Burn. Outl. of Bot. v. ii. p. 900, 958, & 1008.—ROTA'CEÆ, *Linn.*

GEN. CHAR. *Calyx* (fig. 1.) inferior, of 1 sepal; divided about half way down into 4 equal, pointed segments, permanent. *Corolla* (see figs. 2 & 3.) of 1 petal, with a swelling tube the length of the calyx; and a 4-parted, spreading limb; segments equal, imbricate in the bud. *Filaments* (see fig. 3.) 4, from the tube of the corolla, between the segments of the limb, and much shorter, thread-shaped, nearly equal, upright. *Anthers* roundish-oblong, of 2 cells. *Germen* (see fig. 4.) oval, superior. *Style* (see fig. 4.) terminal, thread-shaped, a little inclining, as long as the limb. *Stigma* capitate, undivided. *Capsule* (figs. 6 & 7.) filling the tube of the corolla, which gradually enlarges with it, elliptical, compressed, imperfectly 2-celled. *Seeds* numerous, small, rough, attached to a fixed, or finally separated, double *receptacle (placenta).*

The 4-cleft *calyx;* the monopetalous, inferior, salver-shaped, 4-cleft *corolla*, with a swelling tube; the roundish-oblong *anthers* of 2 cells, opening longitudinally; the entire *stigma;* and the imperfectly 2-celled, many-seeded *capsule;* will distinguish this from other genera in the same class and order.

One species British.

E'XACUM FILIFO'RME. Filiform Exacum. Least Gentianella. Marsh Centory.

SPEC. CHAR. Stem thread-shaped, forked. Leaves chiefly radical, spear-shaped, or spatulate, single-nerved, sessile. Flowers on long pedicels.

Engl. Bot. t. 235.—Hook. Fl. Lond. t. 86.—Sm. Fl. Brit. v. i. p. 182.; Engl. Fl. v. i. p. 212.—Willd. Sp. Pl. v. i. pt. 1. p. 638.—With. (7th ed.) v. ii. p. 229.—Ait. Hort. Kew. (2nd ed.) v. i. p. 250.—Lindl. Syn. p. 177.—Hook. Brit. Fl. p. 66.—Macr. Man. Brit. Bot. p. 157.—Fl. Devon. p. 28.—Irv. Lond. Fl. p. 225.—Luxf. Reig. Fl. p. 13.—Mack. Catal. Pl. of Irel. p. 18.; Fl. Hibern. p. 185.—*Microcále filifórme*, LINK. Don's Gen. Syst. of Gard. and Bot. v. iv. p. 213.—*Franquevillia minima*, Gray's Nat. Arr. p. 338.—*Gentiána filifórmis*, Linn. Sp. Pl. p. 335.—Huds. Fl. Angl. (2nd ed.) p. 103.—Fl. Dan. t. 324.—With. 1st ed. v. i. p. 142.; 2nd ed. v. i. p. 263.—*Cicendia filiformis*, Reich.—Bab. Prim. Fl. Sarn. p. 61.—*Centaurium palustre luteum minimum nostras*, Ray's Syn. p. 286.—Vaill. Paris. p. 32. t. 6. f. 3.

LOCALITIES.—On sandy or turfy bogs.—*Cornwall;* Marsh between Penzance and Marazion; and by the cross road to St. Ives: Mr. H. C. WATSON, in N. B. G. Sandbanks between St. Blazey Bridge and the Par Sand: Mr. STACKHOUSE. In a ditch near the road leading to Bodmin, four miles from St. Michael's; Gorse Moor and Roche: Rev. J. P. JONES, in Bot. Tour, pp. 36 & 37. Gorse Moor, close by the side of the Truro and Bodmin road: August 14, 1840; Mr. W. WILLIS.—*Devon;* Here and there in the county: HUDSON. More frequent in

Fig. 1. Calyx.—Figs. 2 & 3. Corolla.—Fig. 4. Germen, Style, and Stigma.—Fig. 5. Capsule.—Fig. 6. Capsule with valves separated.—Fig. 7. Transverse section of same.

* From *ex*, Gr. *out;* and *ago*, Gr. *to drive;* from its supposed property of ejecting poison from the stomach. † See folio 46, note †.

Devon than in other counties: Mr. Yonge, in B.G. Babbacombe: H. Woollcombe, Esq.—*Dorset;* On Wareham Common, by the side of the road as you go to Corfe Castle: Rev. Dr. Goodenough. Common on the sandy parts of heaths, especially on the borders of pits, pools, ditches, and bogs; about a mile from Sherford Bridge, in the road to Wareham; on Pool Heath, and by the Fleets; in the way from Corf Mullein to Pool; in Purbeck; heaths between Wimbourne and Ringwood; about Christchurch; and Morton, plentifully: Dr. Pulteney, in B. G.—*Surrey?* Abundant by the sides of the road, and on a moist sandy hillock, near a swamp, about midway between Pease-Pottage Gate and Starve-Mouse Plain, on Tilgate Forest; and on the banks of a pool, about half a mile to the north of the former station: *Reigate Flora.—Sussex;* Previous to the enclosure of Horsham Common, it grew there abundantly, and still grows plentifully in St. Leonard's Forest: T. H. Cooper, Esq. in N. B. G.—IRELAND. Sandy turf-bogs, near Bantry: Miss Hutchins, Mr. J. Drummond, and Mr. W. Wilson, in *Fl. Hibernica.* Near Cork; upon Dursey Island; and at Glengariff: Sir W. J. Hooker.

Annual.—Flowers from June to August.

Root small, fibrous. *Stem* from 2 to 4 inches high, upright, nearly round, slender, flexuose, branched, more or less forked, smooth, leafy, especially at the base. *Leaves* spear-shaped, or approaching to spatulate, simple, entire, opposite, connate at the base, single-ribbed, somewhat fleshy; those near the root the largest, yet scarcely 3 lines long, spreading or slightly reflexed, near together; the others very remote, more narrow, upright. *Peduncles* terminal and lateral, upright, from 1 to 2 inches long, slender, single-flowered. *Flowers* small, yellow, opening only in bright sunshine. *Calyx* with 4 pointed segments, membranaceous at the margin. *Corolla* permanent, its tube closely appressed to the germen. *Filaments* short. *Anthers* a little exserted. *Capsule* covered with the permanent calyx and corolla. *Seeds* numerous, brown, somewhat egg-shaped, slightly angular, dotted; their receptacle (placenta) formed by the incrassated inflexed margins of the 2 valves of the capsule.

As well as of England and Ireland, this curious little plant is a native also of France, and Denmark; and of Chili, about Conception. It differs from *Gentiana* in the number of *stamens* and divisions of the *calyx* and *corolla*.

The specimen from which the drawing for the accompanying plate was made, was kindly communicated to me from Gorse Moor, Cornwall, by Mr. W. Willis, of St. Austell. Specimens of it have also been obligingly communicated by J. C. Rickem, Esq. of East Leigh, Hants.

The *plants* which compose the *Natural Order* Gentianeæ are mostly *herbaceous*, seldom *shrubby*, usually smooth, with opposite, sometimes alternate, entire *leaves*, without *stipulæ*. The *flowers* are terminal or axillary. The *calyx* is inferior, of 1 sepal, divided, and permanent. The *corolla* is monopetalous, usually regular, withering or deciduous; the limb with an imbricated, twisted æstivation, sometimes only 4, but mostly 5, 6, 8, or 10-lobed. *Stamens* equal in number with the lobes of the corolla. *Ovary* solitary, 1- or 2-celled, many-seeded. *Styles* 1 or 2, either partially or wholly cohering. *Stigmas* 1 or 2. *Capsule* (sometimes a *berry*) many-seeded, with 1 or 2 cells, and generally 2 valves; the margins of the valves turned inwards, and in the genera with 1 cell, bearing the seeds; in the 2-celled genera the seeds are on a central *receptacle*. *Albumen* fleshy.

The plants of this order are innocuous, and remarkable for their exceeding bitterness, which makes them unfit for food, but at the same time renders them valuable tonic and stomachic medicines. It includes the following British Genera: 1. *Exacum*, t. 400.—2. *Erythræa*, t. 367.—3. *Gentiana*, t. 185.—4. *Swertia*.—5. *Chlora*, t. 69.—6. *Menyanthes*, t. 245.—7. *Villarsia*, t. 161.

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N. B. When *a* follows the number of the folio, it indicates a reference to the second page of that leaf.

CORRECTIONS and ADDITIONS.

Folio 340 a, line 33, *for* indiginous, *read* indigenous.
Folio 373 a, line 7 from the bottom, *for* the first, *read* at first.
Folio 391 a, line 15 from the bottom, *for* devoloped, (in some copies,) *read* developed.

Echinospermum Lappula, Lehm. Asper. p. 121.—*Myosotis Lappula*, Linn. Sp. Pl. p. 189, has been found wild near Southwold, Suffolk, by the Rev. Mr. Holmes, of Harleston, Norfolk. It is a native of Sweden, Denmark, Germany, France, Switzerland, and Italy; also of Asia, and North America, among rubbish, stones, and on walls; and of China, on mountains; but it had not, I believe, been found in a wild state, in England, until Mr. Holmes discovered it in the station above mentioned, in 1839. It was cultivated in the Physic Garden at Edinburgh as long ago as 1683. See *Sutherl. Hort. Med. Edinb.*

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